



Building Competitive Advantage

Cataloging & Managing Standards

Reducing program costs and improving product Quality through Standardization and Reuse

Parts Standardization & Management Committee Conference

Nov 13-16 2006

PARTsolutions LLC



PARTsolutions Core Competencies



- Digital Parts Catalogs and Product Portals for Component Manufacturers and CAD companies
- Enterprise Intelligent Parts Management
- SDO's- Standard Organization Relationship (ASME)

eCATALOGsolutions

Electronic product catalog

PARTcommunity

e-Engineering Portal
e-Shop

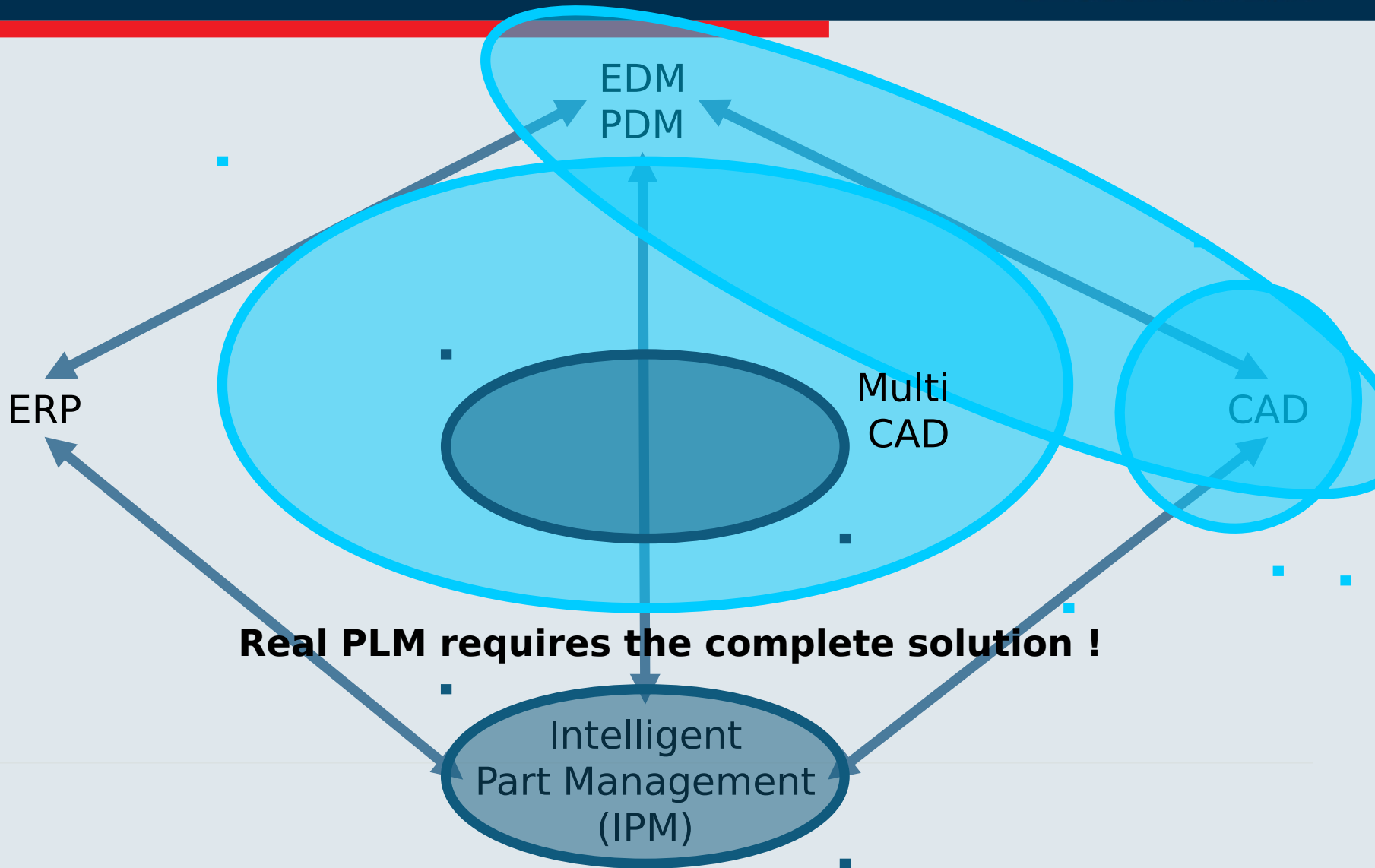
PARTsolutions

Intelligent Parts Management with ERP/PDM integration

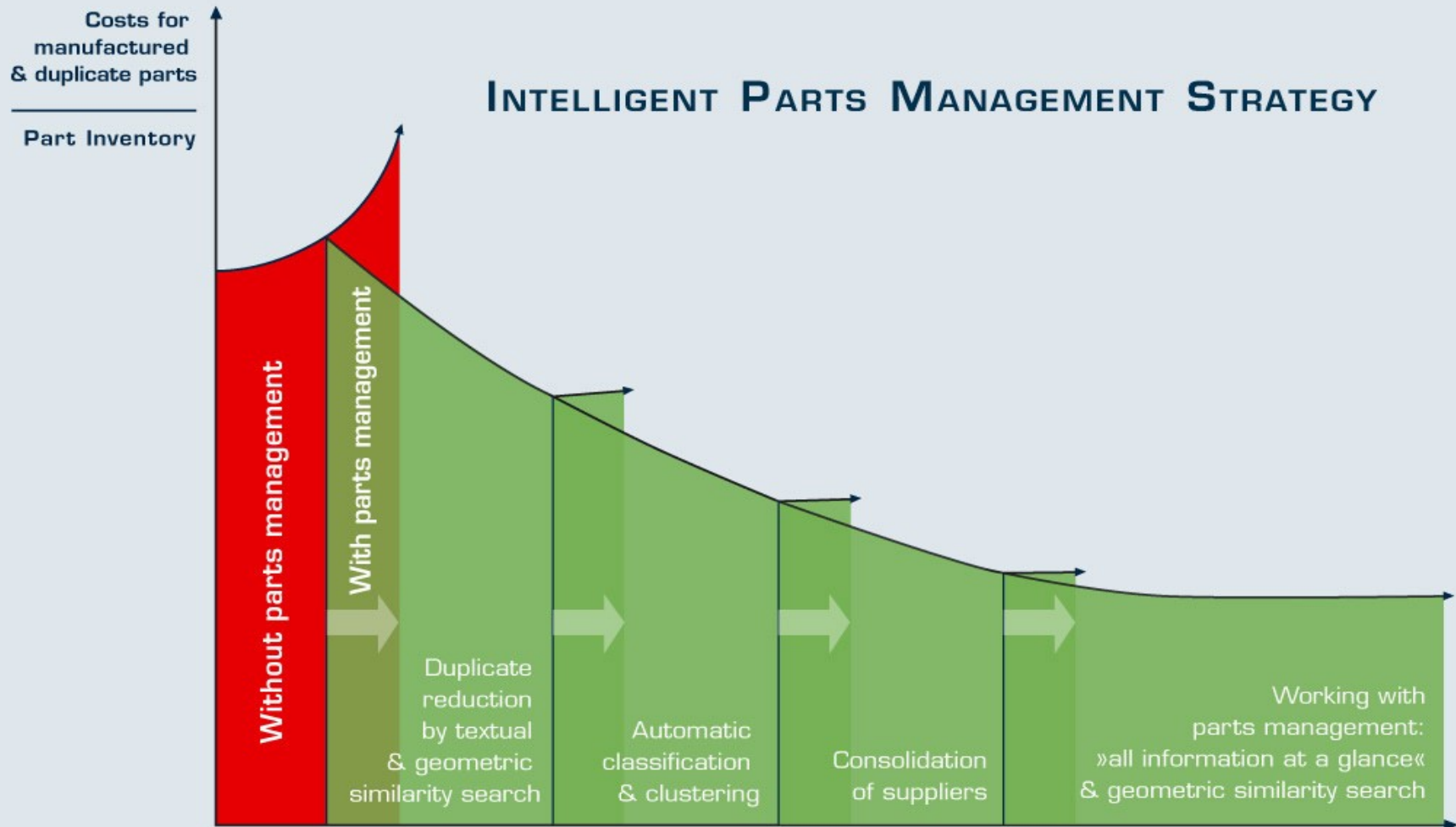
PARTwarehouse

Parts Consolidation & Geometrical Similarity Search & Knowledge Database

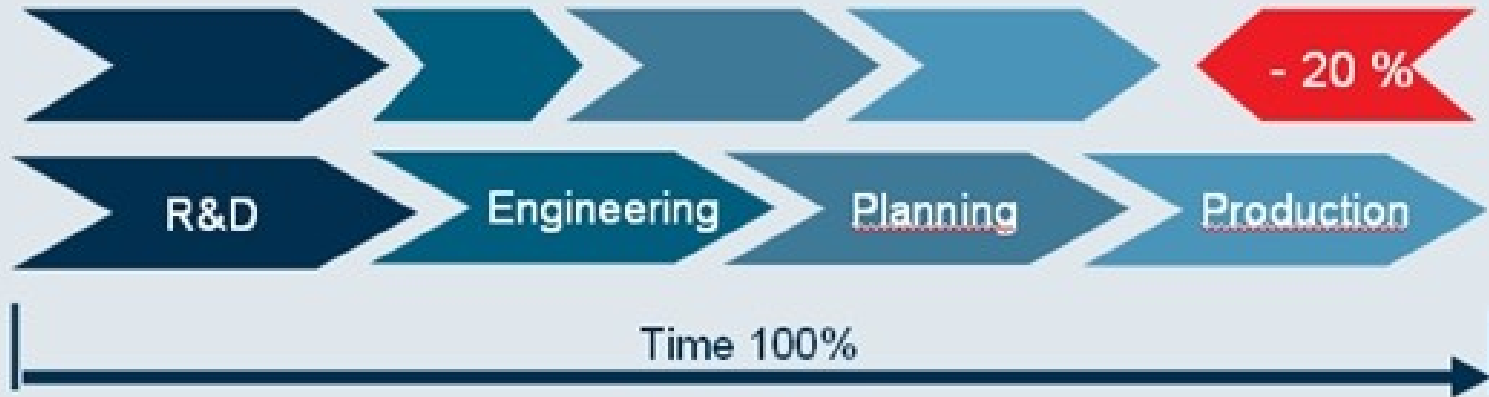
The Market Needs Complete Solutions



Baselining the Company assets.....

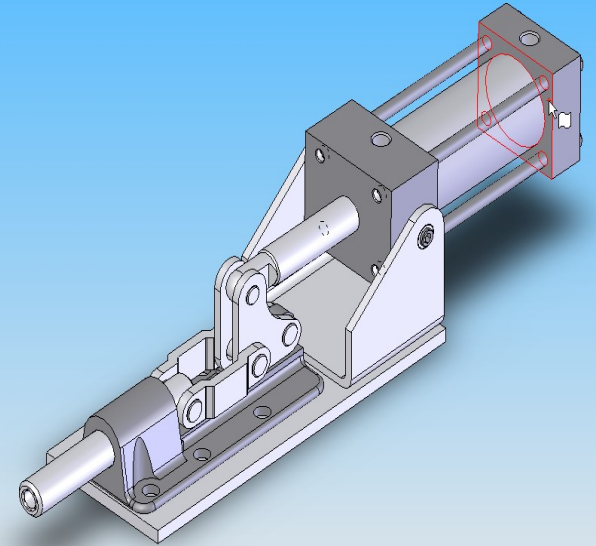
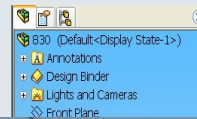
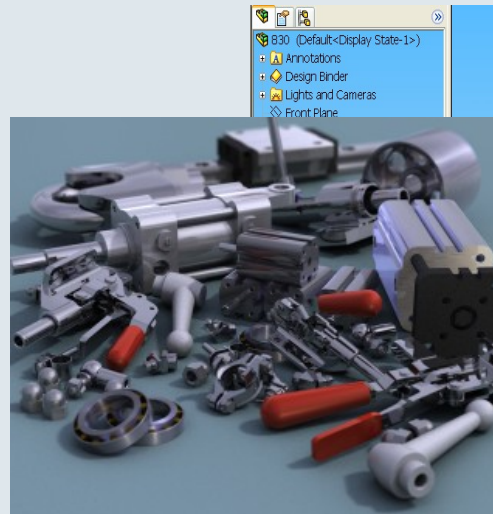


Traditional cost reduction focus for an Enterprise



Traditional Design Approach.....

The Introduction of new parts



Problems with Tradition.....

Standard/commercial parts are difficult to manage and reuse because:

Incomplete part descriptions

Lack of common classification

Disconnected databases

Missing or inadequate information

Engineers can't find what they need

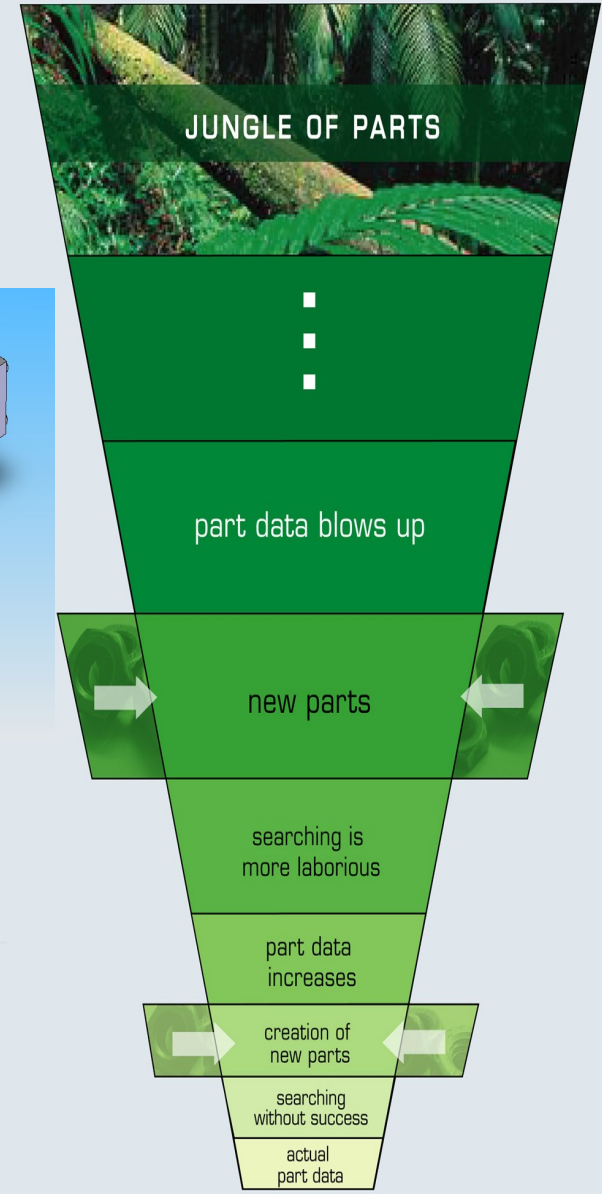
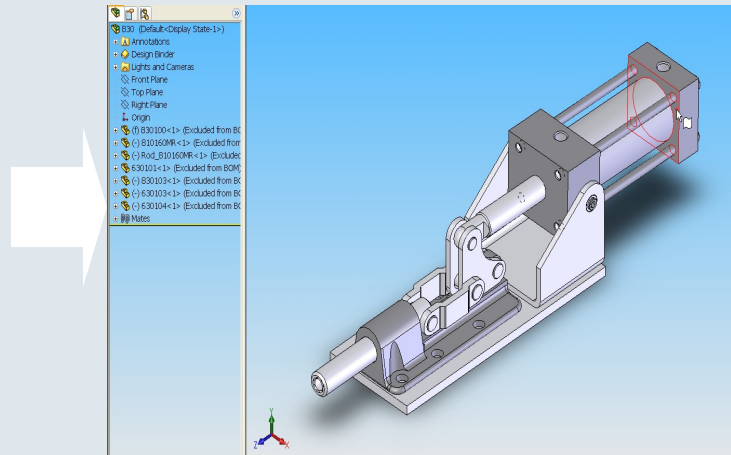
Resulting in...

= Duplicate and similar parts get created

= Increased costs and the ***“Jungle of Parts”***

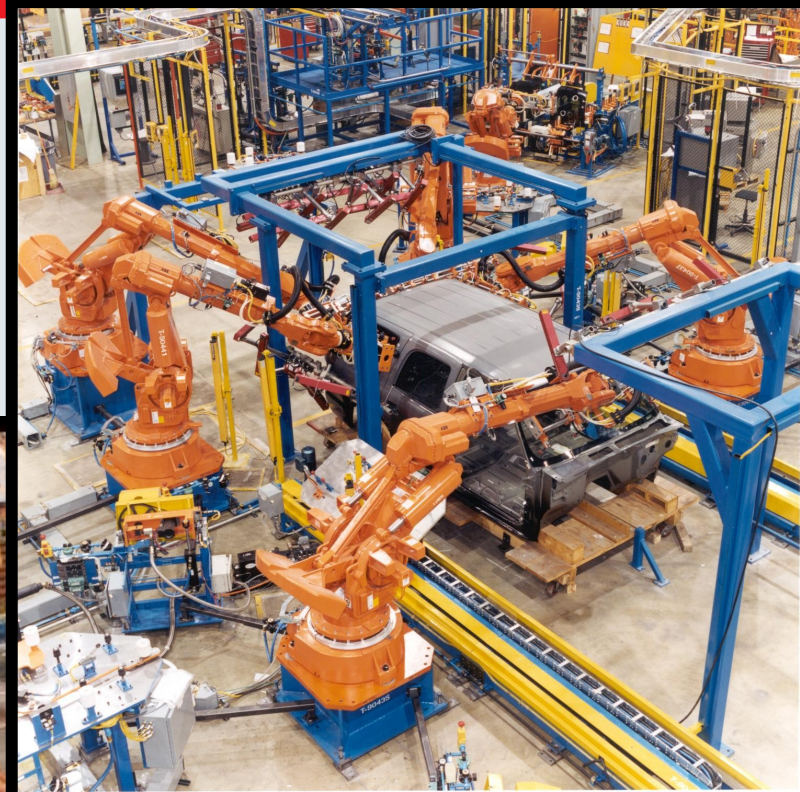


Creating the Jungle.....

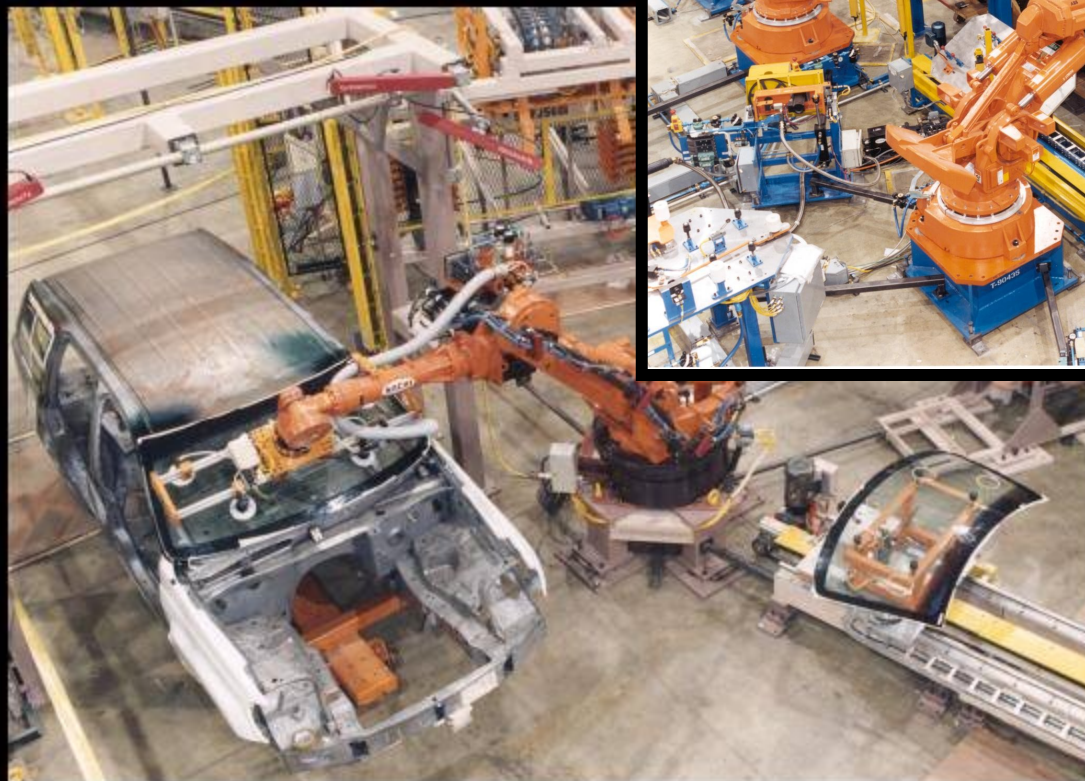


A typical problem our Customers face.....

PART SOLUTIONS



90 % of these
parts are “off-
the-shelf”



Aberdeen Group Findings...

“For an engineer to consider incorporating a standard part in a new design, the engineer must first know that it exists and be able to find it.”

“27% of total time is routinely spent looking through databases and in-house libraries...”

“18% of total time is devoted to reentering and re-creating part information that already exists but can’t easily be found.”

45% of an engineers total time is spent looking for parts!

Bottom line... if an engineer can't find what they need or don't have confidence in what they do find they will simply create a new part.

Customer Example - Commercial

Siemens Transportation Systems

250,000 total parts (custom & commercial)

11,762 parts were provided as a sampling

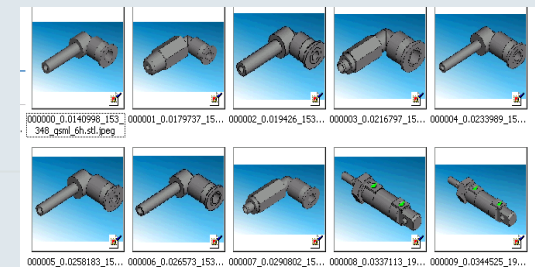
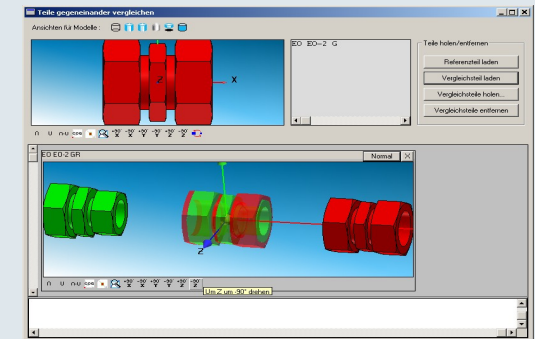
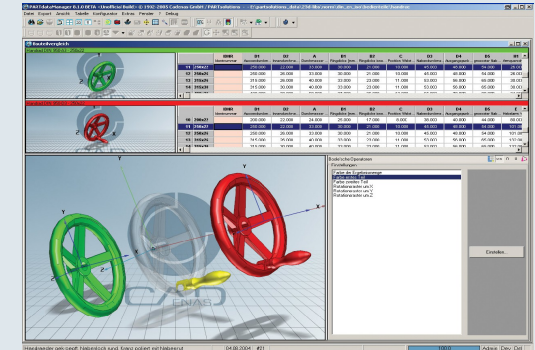
Grouped by name, size, material...

479 duplicates were identified (4%)

$250,000 \times 4\% = 10\text{K}$ possible duplicates

\$1,300 = estimated cost per part

$10,000 \text{ SKUs} \times \$1,300/\text{part} = \$13\text{M}$ savings



Customer Example - Government

US Department of Defense

Engineering and design = \$9,300

Testing = \$700

Manufacturing = \$1,750

Purchasing = \$3,800

Inventory = \$875

Maintenance = \$3,750

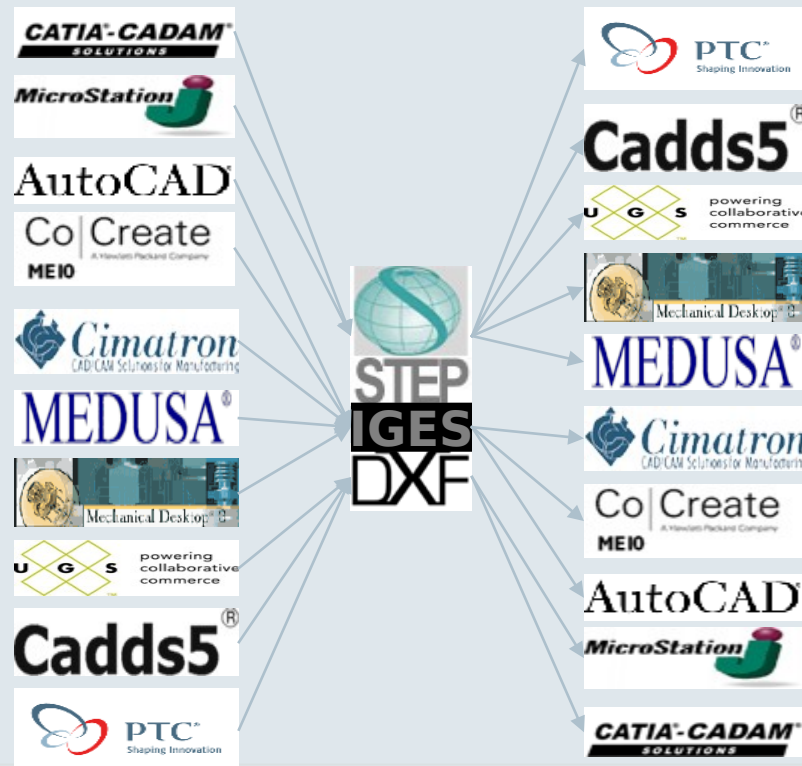
Total cost of a new part = \$20,000



Source: Defense Logistics Agency, Parts Standardization & Management Committee

Traditional Data Migration Issues.... Translations!

Dated Approach



Disadvantage: loss of data

Single Source of Authoritative Shape Data...

Parametric based and driven from electronic data files

PART
SOLUTIONS

Dynamic “build-on-the-fly” 3D Standard Part geometry creation from the authored shape and simple dimensional table from the single source repository

The screenshot displays the PARTdataManager 8.0.24 Build 15104 interface. The main window shows a table of bolt specifications with columns for Part Number, Field 234 PIN, NOM SIZE, THREAD, L, LG, LT, RBD, MATFIN, * F7, F7PIN, PREF, * TS, TENSTR, * PL, and PROOFLOAD. The table lists various bolt specifications, including sizes like .625, .625-11 UNC-2A, and .625-18 UNF-2A. A material selection dialog box is open, showing a list of materials including ASTM A 183, ASTM A 193/193M, ASTM A 194/194M, ASTM A 307, and ASTM A 307, Grade A. The dialog also includes a section for Zinc Plating, with options for ASTM A 153 and ASTM B 633. A 3D model of a bolt is shown in the bottom right corner, with a coordinate system (X, Y, Z) and a dimension F. The model is a hexagonal bolt with a threaded shank. The interface also includes a sidebar with a tree view of bolt types (AEB02 - Bolts, H., AEB03 - Bolts, H., AEB04 - Bolts, A.) and a bottom status bar showing the part number #9064 and the user/dev information.

	F234PIN Field 234 PIN...	NOM SIZE Nominal Size	THREAD Thread	L Length	LG Grip	LT Thread Length	RBD Reduced Bod...	MATFIN Select Materia...	* F7 Select Feature	F7PIN Field 7 PIN	PREF Usage Notes	* TS Select Tensile	TENSTR Tensile Strang...	* PL Select Proof L...	PROOFLOAD Proof Load Lbs.
2049	C625B50	.625	.625-11 UNC-2A	2.500	1.000	1.500	No	---	Plain End-No Additional Features	1	Common	-	0	-	0
2050	F625B50	.625	.625-18 UNF-2A	2.500	1.000	1.500	No	---	Plain End-No Additional Features	1	Common	-	0	-	0
2051	C62540R	.625	.625-11 UNC-2A	2.500	1.000	1.500	Yes	AP5A2	Plain End-No Additional Features	1	Common	-	0	-	0
2052	F62540R	.625	.625-18 UNF-2A	2.500	1.000	1.500	Yes	---	Plain End-No Additional Features	1	Common	-	0	-	0
2053	C625B62	.625	.625-11 UNC-2A	2.625	1.125	1.500	No	---	Plain End-No Additional Features	1	Common	-	0	-	0
2054	F625B62	.625	.625-18 UNF-2A	2.625	1.125	1.500	No	---	Plain End-No Additional Features	1	Common	-	0	-	0
2055	C62542R	.625	.625-11 UNC-2A	2.625	1.125	1.500	Yes	---	Plain End-No Additional Features	1	Common	-	0	-	0
2056	F62542R	.625	.625-18 UNF-2A	2.625	1.125	1.500	Yes	---	Plain End-No Additional Features	1	Common	-	0	-	0
2057	C625B75	.625	.625-11 UNC-2A	2.750	1.250	1.500	No	---	Plain End-No Additional Features	1	Common	-	0	-	0

Material selection 8.0.25 Build 15109

Recommended materials | Additional materials

- ASTM Material Specifications
 - ASTM A 183 - Carbon Steel Track Bolts and Nuts
 - ASTM A 193/193M - Alloy Steel and Stainless Steel Bolting Materials for High Temperature
 - ASTM A 194/194M - Carbon and Alloy Steel Nuts for Bolts for High-Pressure
 - ASTM A 307 - Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength
 - ASTM A 307, Grade A
 - Plain, No Finish
 - ASTM A 153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 - Zinc Plate - ASTM A 153
 - ASTM B 633 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 - ASTM B 695 - Coatings of Zinc Mechanically Deposited on Iron and Steel

OK | Cancel

Y
Z
X

[Note (4)] A
F
G
[Note (7)]
[Note (9)]
[Note (9)]
L
L_B
L_G
Y (nom.)
g +0
-15
Rolled Thread

AEB02 - Bolts, H.
AEB03 - Bolts, H.
AEB04 - Bolts, A.

Bolts, Hex #9064 100.0 User | Dev

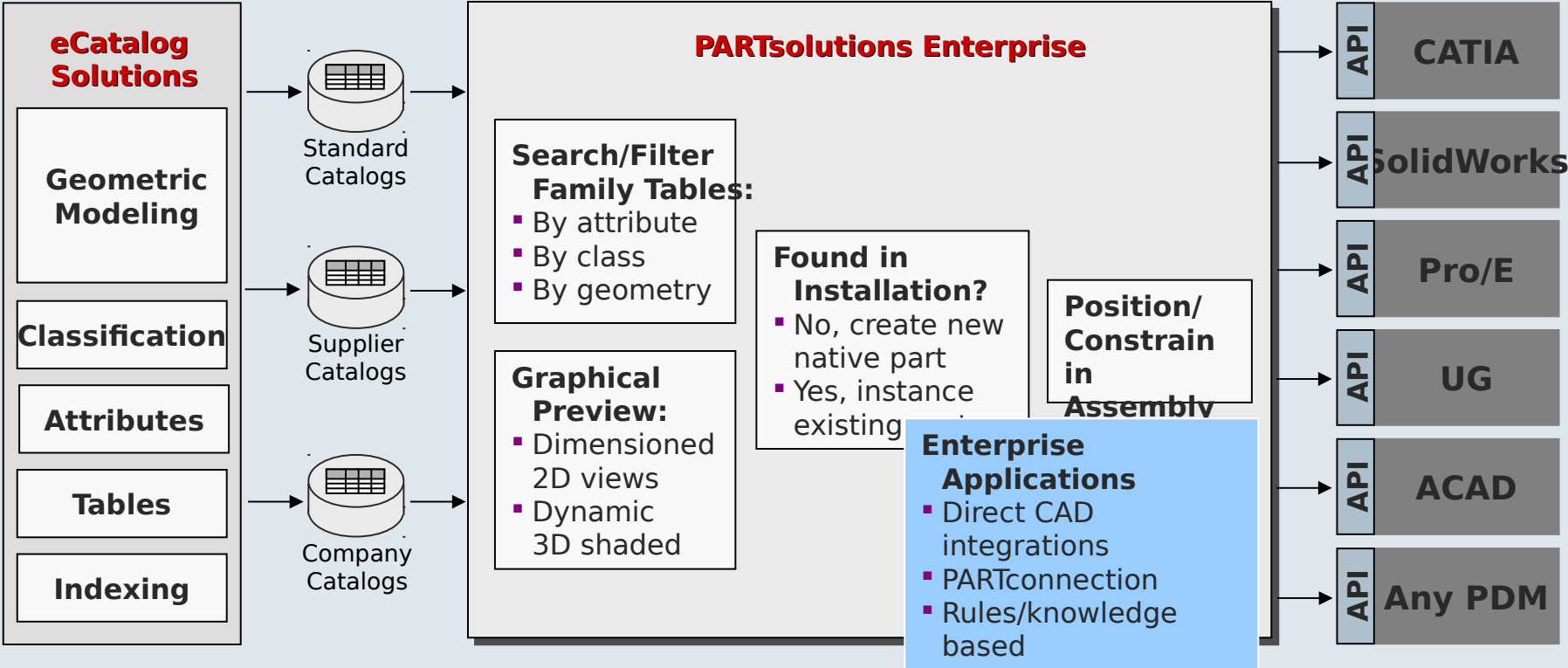
PARTsolutions Technology In A Nutshell...

Providing 100% native data from the author to the consumer



CAD - Independent (Authoritative Source)

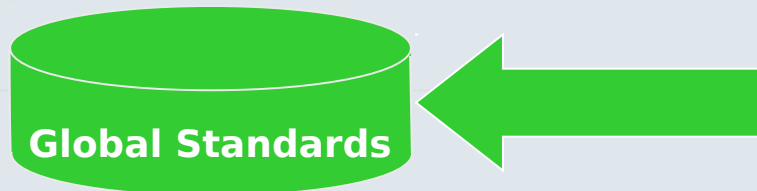
CAD - Native



...70 other graphical & shape outputs supported, including versions of all major CAD/PDM/ERP apps

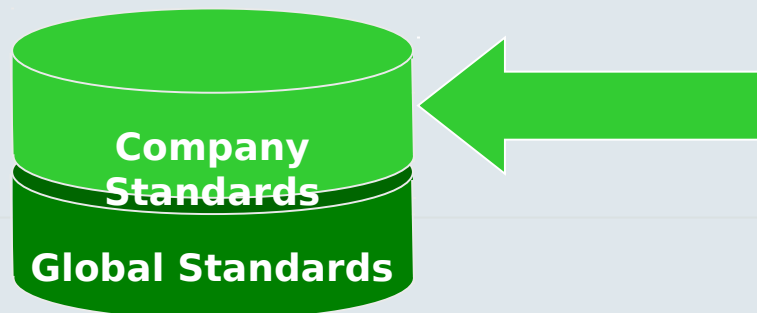
Global Standards

Global standards for design and manufacturing processes



Company Standards

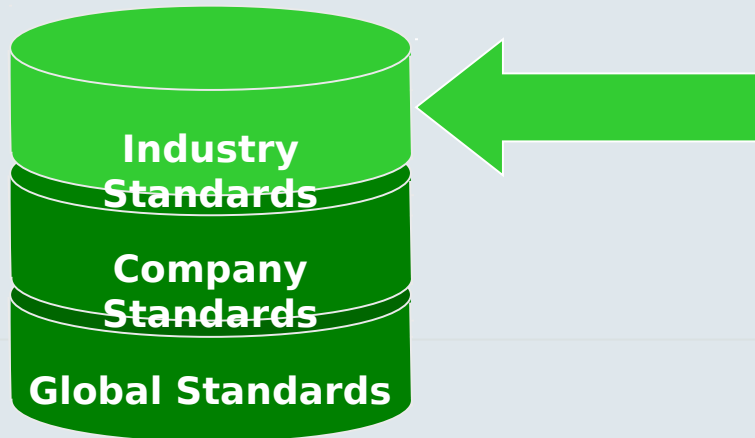
Company specific standards that are exposed to their supply chain



Industry Specific Standards

Standards that are governed by government and industry committees

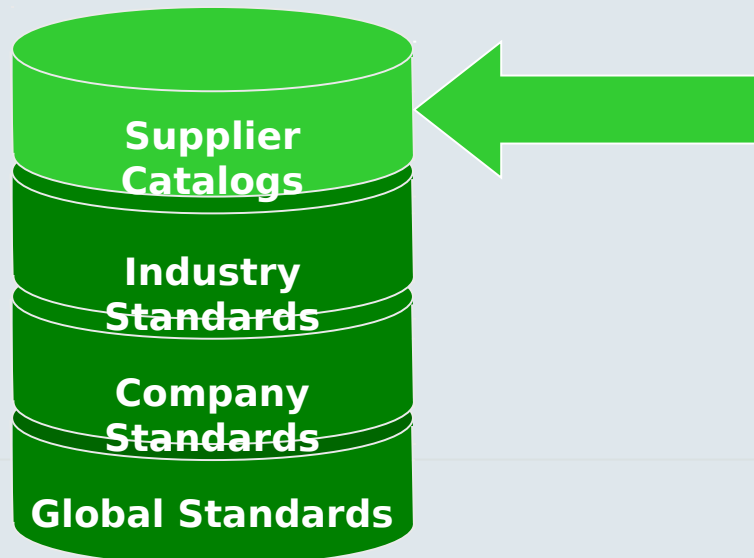
AIA, MS, ASME, SAE, etc...



Clustering and Classifying Standards...

Supplier Catalogs

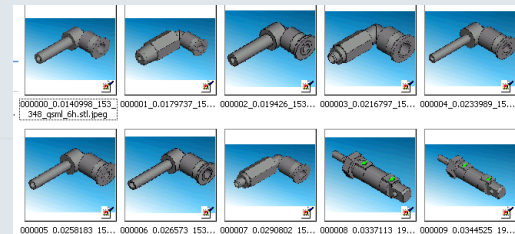
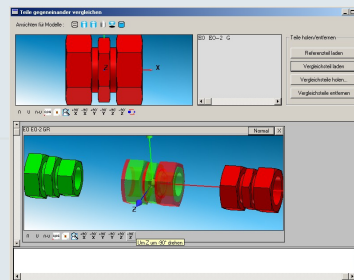
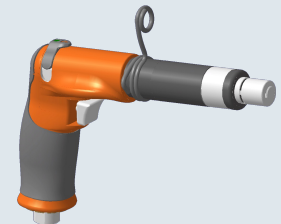
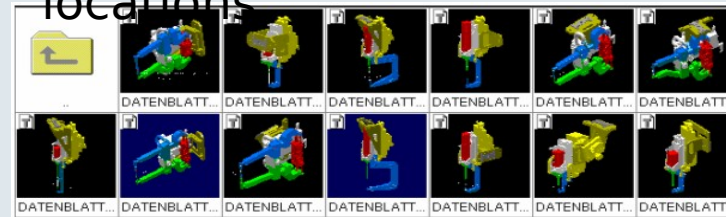
Vendor/supplier parts that are approved and being used in your products



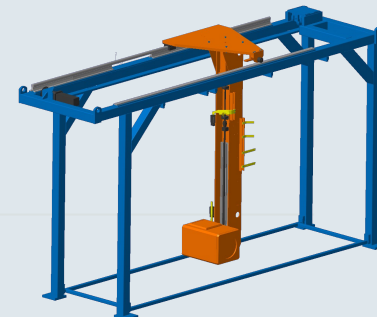
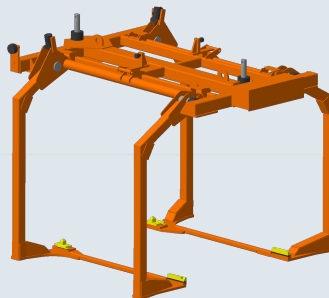
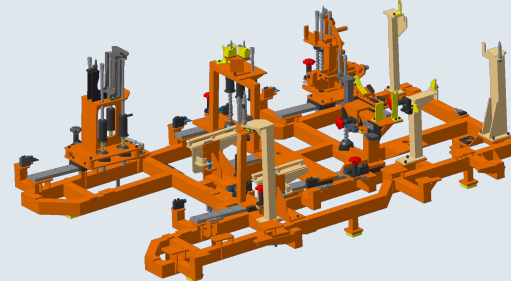
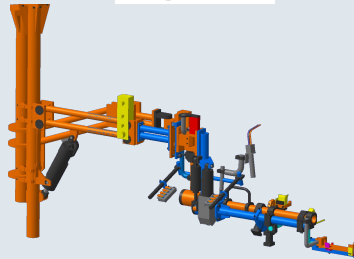
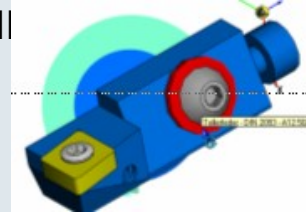
Clustering and Classifying Standards...

Existing Math Data

Existing CAD libraries scattered across multiple databases and locations



Potential to link re-usable corporate knowledge-based tooling templates to Process; all the technology

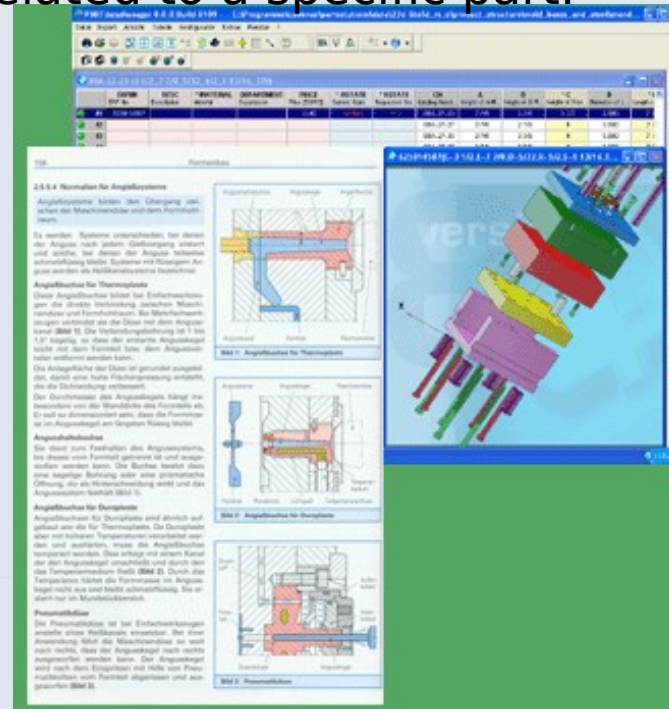


Clustering and Classifying Standards...



Linked Documents & Content

Spec sheets, manufacturing and purchasing docs... any document related to a specific part.



The Digital Envelope..... Form, Fit, Function.....

02CA04001S (Active) - Pro/ENGINEER

File Edit View Insert Analysis Info Applications Tools PARTSolutions Window Help

02CA04001S.ASM

- 02XX040SCAS01.PRT
- 02XXX.PRT
- CA040040017.PRT
- B0400108.PRT
- 281FS06201S.ASM
 - 281XX06201SFS.PRT
 - 281XXX.PRT
 - WFS06201.PRT
 - B0620108.PRT
 - WFS06201.PRT
 - B0620108.PRT

281FS06201S

	PN	* CASTER	DIA	WIDTH	TYPE	CAP	OH	SL
	Part No.	Caster Type	Wheel Diamet...	Wheel Width [...]	Wheel Type	Rated for Ma...	Overall Height...	Swivel La...
27	281FS06201	Swivel	6	2	Drop Forged	2000	7-1/2	2-1
28	281CA06201	Swivel	6	2	Cast Iron	2000	7-1/2	2-1
29	281TM06201	Swivel	6	2	Phenolic	2000	7-1/2	2-1
30	281NG06201	Swivel	6	2				
31	281PD06201	Swivel	6	2	Po			
32	281PI06201	Swivel	6	2	Po			
33	281PM06228	Swivel	6	2	Polyure			
34	281CH06201	Swivel	6	2	Cast			

281FS06201S

2D view

Model OK

Front
Rear
Right
Left
Top
Bottom

☐ Current view

☒ Thick
☒ Thin

#55 100.0 User

Part '281FS06201S' not changed since last regen.
281FS06201S has been saved.
Select any reference for auto type constraining.
You are leaving this component as packaged.
Component packaged successfully.

Configure “As Purchased” Condition.....

PARTdataManager 8.1.02 Build 15041 - PARTsolutions by CADENAS - C:\Program Files\cadenas\partsolutions\data\23d-libs\aiab\blind_bolts\nas1671.prj

File Export View Table Configurator Extras Window PARTAssistant Tools ?

Assembly NAS1671-3L8B

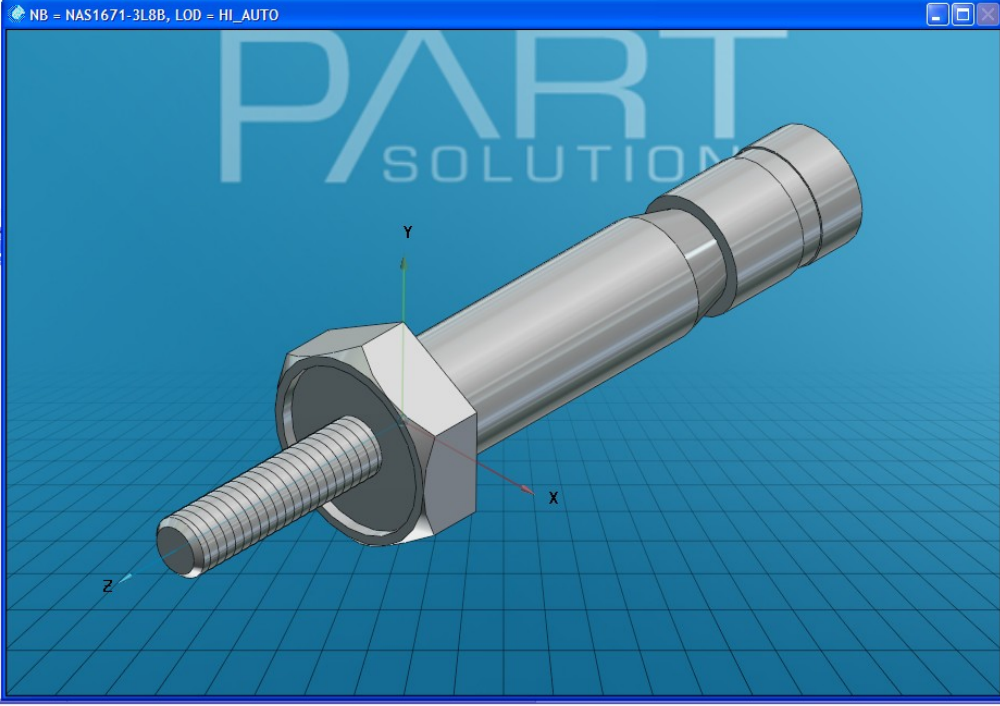
Bill of material

NB

NAS1671-3L8B 1

	FD	ND	A	C	* GR	* TYPE	Lubrication
	First dash No.	Nom. Dia. [INCH]	A [INCH]	C Max. [INCH]	Grip Range [INCH]	Type	
eClass 5.0 (SP1):							
1	-08	.164	.250-.244	0.268	.031-.093	Fastener with Self - Locking Provisions	Graphite Free D
2	-3	.200	.312-.305	0.303	.470-.531	Fastener with Self - Locking Provisions	Graphite Free D
3	-4	.260	.375-.367	0.354	.094-.156	Fastener with Self - Locking Provisions	Graphite Free D
4	-5	.312	.437-.429	0.423	.094-.156	Fastener with Self - Locking Provisions	Graphite Free D
5	-6	.375	.500-.491	0.510	.157-.219	Fastener with Self - Locking Provisions	Graphite Free D

NB = NAS1671-3L8B, LOD = HI_AUTO



Settings

Preview dimension:

Dimensions

Directory

NAS1671 - ...

Display mode:

Fastener - Blind, Internally Threaded, External Sleeve, High Temperature, Prot...

06/22/2005 | #5

100.0

Admin | Dev | Del

Configure 'As Installed' Condition....

PARTdataManager 8.1.02 Build 15041 - PARTsolutions by CADENAS - C:\Program Files\cadenas\partsolutions\data\23d-libs\ai\blind_bolts\nas1671.prj

File Export View Table Configurator Extras Window PARTAssistant Tools ?

Assembly

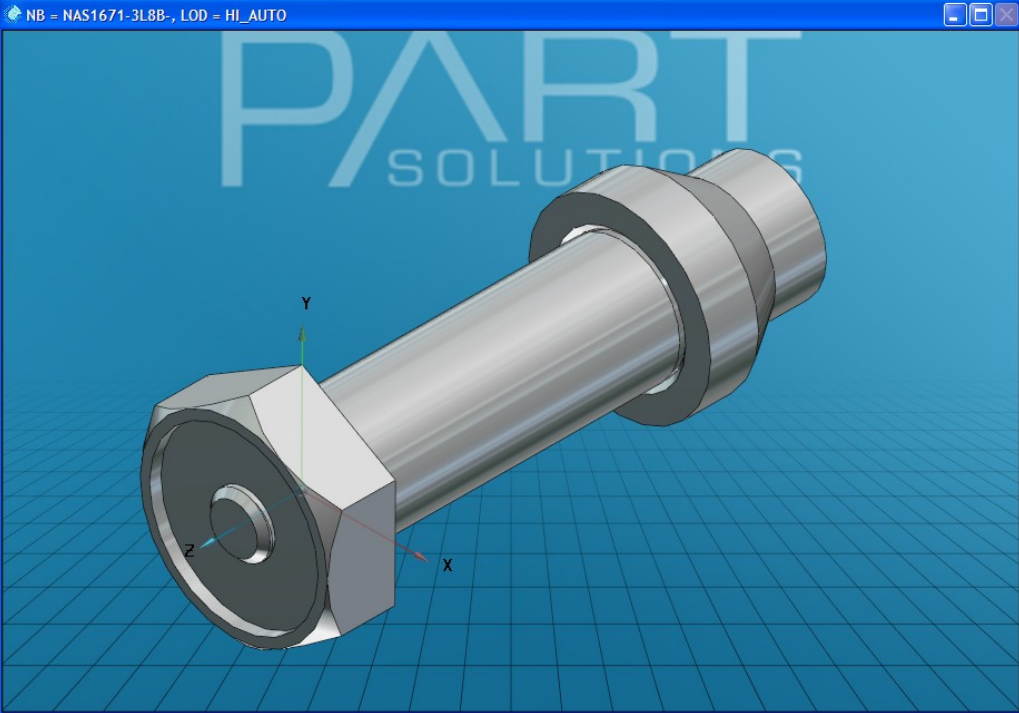
Bill of material

NB

NAS1671-3L8B-

* VIEW	D	H	J	K	L	N	PL	PDL
View Manufact...	D Dia. [INCH]	H Max. [INCH]	J Dia. Max. [I...	K Max. [INCH]	L Ref. [INCH]	N [INCH]	PL Ref. [INCH]	PDL Ref. [INCH]
1 Manufactured	.1625-.1645	0.069	0.244	0.246	0.340	0.375	0.388	0.828
2 Installed	.1970-.1990	0.113	0.300	0.281	0.385	0.375	0.484	0.868
3 Manufactured	.2580-.2600	0.135	0.384	0.325	0.447	0.375	0.493	1.030
4 Manufactured	.3095-.3115	0.160	0.427	0.390	0.550	0.500	0.542	1.282
5 Manufactured	.3725-.3745	0.190	0.516	0.470	0.660	0.500	0.506	1.351

NB = NAS1671-3L8B-, LOD = HI_AUTO



Settings

Preview dimension:

Dimensions

Directory

NAS1671 -...

Display mode:

Fastener - Blind, Internally Threaded, External Sleeve, High Temperature, Protr... 06/22/2005 #5 100.0 Admin Dev Del

René Descartes (1596-1650)

We're not philosophers, but his idea was a good one...



HIS IDEA...

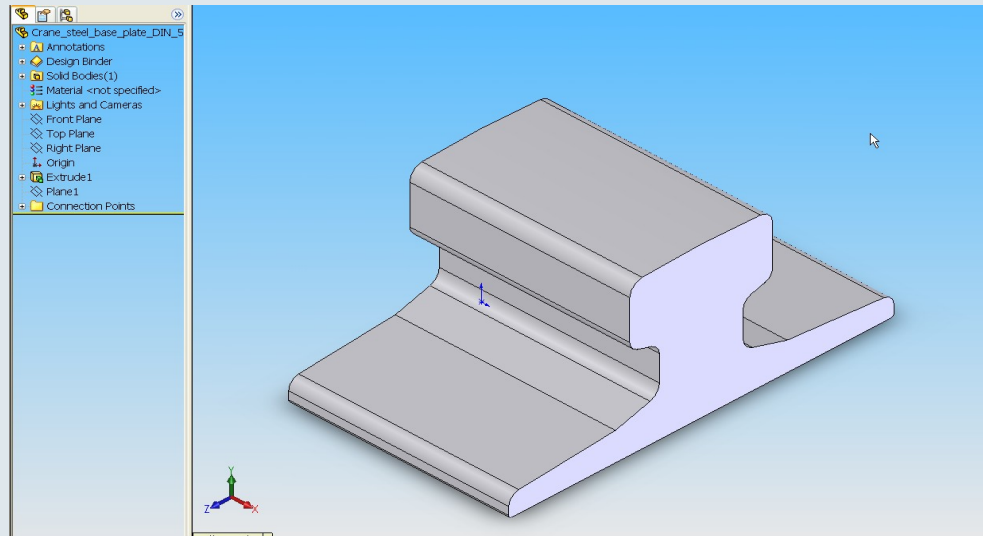
To analyze complex ideas you must break them down into their simple elements, reason can then intuitively be understood.

Which Yielded.....

OUR IDEA...

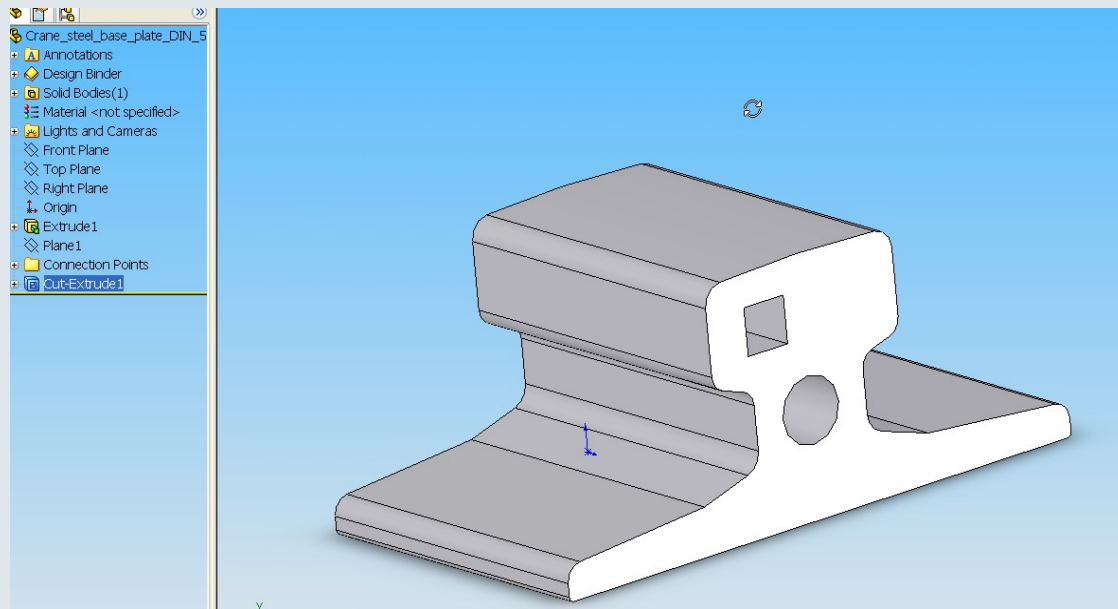
Create a Paradigm shift in the way Engineers approach Design re-use using technology

The “Paradigm Shift” in Design Optimization... **PART** SOLUTIONS



The “Back-of-the Envelope” sketch

The “Paradigm Shift” in Design Optimization... **PART** SOLUTIONS



“Refining” the “Back-of-the Envelope” sketch.....

Final Results.....

Insert Tools PARTsolutions Window Help

Smart Dimen... Line Rectan... Circle Center... Arc Tangent Arc 3 Point Arc Sketch Fillet

PARTsolutions geometric based alternative search

C:\WINDOWS\TEMP\Crane_steel_base_plate_DIN_536_1_A65x100.stl

options:

- ☒ Catalog: norm
- ☐ all catalogs
- ☐ use cluster search
- ☒ show preview bitmaps

Start search Compare

Preview	Hit rate	Name	Catalog	relative path
	85.00%	DIN 536-1	NORM	norm/din_en_iso/st
	74.00%	DIN 3159 O	NORM	norm/din_en_iso/er
	74.00%	DIN 504	NORM	norm/din_en_iso/le
	73.00%	DIN 1024-TB	NORM	norm/din_en_iso/st
	72.00%	EN 3435	NORM	norm/din_en_iso/m
	72.00%	DIN 41672	NORM	norm/din_en_iso/el
	71.00%	EN 10242 UA12	NORM	norm/din_en_iso/ro
	71.00%	DIN 739	NORM	norm/din_en_iso/le
	70.00%	EN 10242 UA2	NORM	norm/din_en_iso/ro
	70.00%	DIN 3489-DB3	NORM	norm/din_en_iso/zu

Custom

Find only “APPROVED” parts...

Engineering Finds A New Component

Company Parts World
PDM+ERP



Under
Standardization/
Purchasing
Department
Control



Supplier Parts World

Controlled Access/Overview of Available Market
Restricted or Forbidden Area (PARTSOL)

Managing and linking the part data...

PART SOLUTIONS

PARTdataManager 8.0.0 Build 6109 - C:\Programme\cadenas\partsolutions\data\23d-lib\...

Fenster ?

Real-time ERP/PDM/EDM Data Price, Delivery, Status, Etc...

Zylinderschraube DIN 912 - M22x2x35

	ERP#	DESC	MATERIAL	ASTATE	RSTATE	IDNR	Ge
	ERP No	Description	Material	Current State	Requested Sta...	Identnummer	Ge
428	M22x2x35	3434535423	10.9	Released			
429	M22x2x40	32432421414		Released	New		
430	M22x2x45						
431	M22x2x50						
432	M22x2x55	432553535	12.9	Released	-		
433	M22x2x60	34256746765	12.9	Released	-		
434	M22x2x65	43254253543	10.9	Released	-		
435	M22x2x70	5342543543253	12.9	Released	-		
436	M22x2x80						
437	M22x2x90	825543253425	8.8	Released	-		
438	M22x2x100		8.8	Released	-		
439	M22x2x110	34254354325	8.8	Released	-		

Zylinderschrauben mit Innensechskant
DIN 912

Technische Zeichnung einer Zylinderschraube mit Innensechskant (DIN 912) und einer Tabelle der Abmessungen.

Abmessungen (in mm):

Größe	M16	M20	M25	M30	M36	M42	M48	M56	M64
A	16	20	25	30	36	42	48	56	64
B	16	20	25	30	36	42	48	56	64
C	16	20	25	30	36	42	48	56	64
D	16	20	25	30	36	42	48	56	64
E	16	20	25	30	36	42	48	56	64
F	16	20	25	30	36	42	48	56	64
G	16	20	25	30	36	42	48	56	64
H	16	20	25	30	36	42	48	56	64
I	16	20	25	30	36	42	48	56	64
J	16	20	25	30	36	42	48	56	64
K	16	20	25	30	36	42	48	56	64
L	16	20	25	30	36	42	48	56	64
M	16	20	25	30	36	42	48	56	64
N	16	20	25	30	36	42	48	56	64
O	16	20	25	30	36	42	48	56	64
P	16	20	25	30	36	42	48	56	64
Q	16	20	25	30	36	42	48	56	64
R	16	20	25	30	36	42	48	56	64
S	16	20	25	30	36	42	48	56	64
T	16	20	25	30	36	42	48	56	64
U	16	20	25	30	36	42	48	56	64
V	16	20	25	30	36	42	48	56	64
W	16	20	25	30	36	42	48	56	64
X	16	20	25	30	36	42	48	56	64
Y	16	20	25	30	36	42	48	56	64
Z	16	20	25	30	36	42	48	56	64

Integrated Data Sheets/Specifications

Rules/Rules/Filters Control Display Out of ERP/PDM/EDM Systems

2D. Vorschau

3434535423

Technische Zeichnung und 3D-Modell einer Zylinderschraube mit Innensechskant (DIN 912).

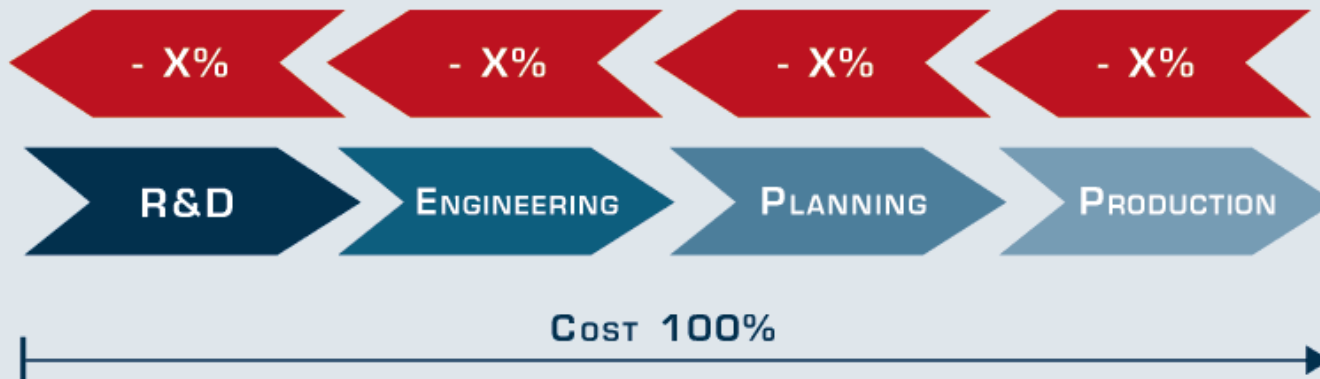
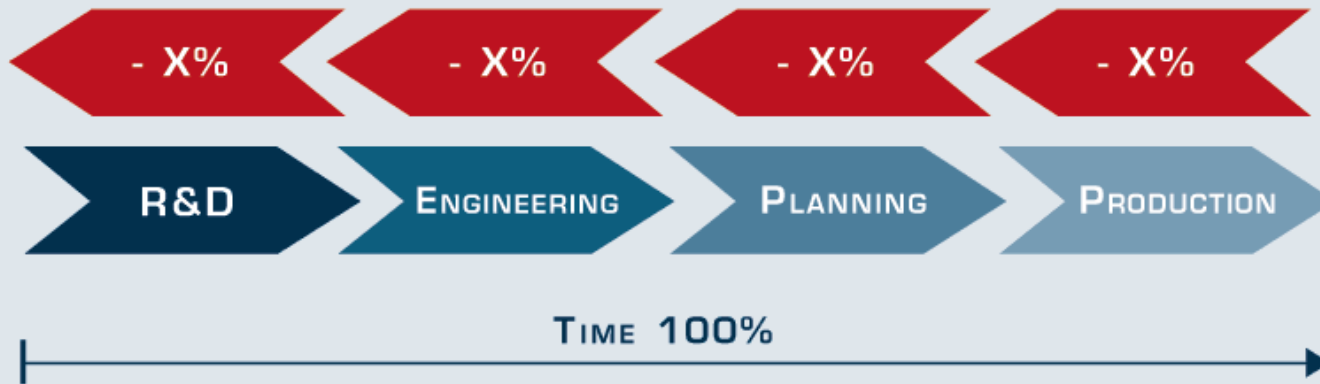
Zeichnungsdaten:

- Größe: M22x2x35
- Material: 10.9
- ASTATE: Released
- RSTATE: New
- IDNR: 3434535423

3D-Modellansicht mit Achsen X, Y, Z.

Start | C:\Programme\c... | C:\Programme\c... | PARTdataMana... | Siemens Kickoff... | TS_Integriertes... | Unbenannt - Paint | 12:02

Process Optimization...yields.....



Introduction

What is ASME B18.24?

A numerical system for identifying fasteners, and all their characteristics

It supercedes B18.24.1, B18.24.2, B18.24.3,

When is it effective?

ASME B18.24 was approved in April 2004, and is now in use

Released in printed form in June 2005

Adopted by DOD in August 2005

What is the Digital Fastener Library?

A partnership between ASME and PARTsolutions has resulted in ASME B18 being represented in a Digital form, as an interactive software tool

The first standard to be represented digitally in ASME 125 year history

ASME B18.24-2004

(Supersedes ASME B18.24.1, B18.24.2, and B18.24.3)

Part Identifying Number (PIN) Code System Standard for B18 Fastener Products

AN AMERICAN NATIONAL STANDARD



How is the library used?

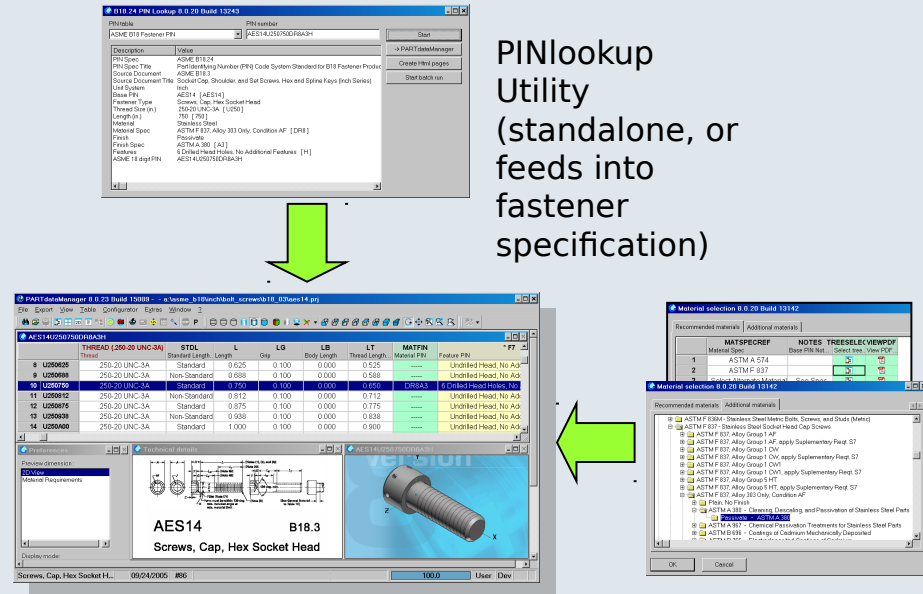
ASME B18 Digital Fastener Library Five Major Utilities

The Digital Fastener Library can be used in 2 distinct ways

By anyone outside Engineering or the CAD department, to lookup PIN numbers and let the Library display the fastener characteristics and show a 3D view.

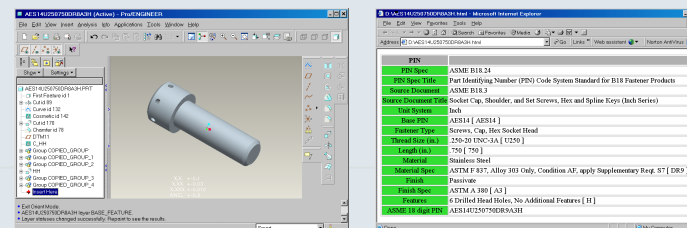
By Engineering to specify fasteners feature-by-feature, and let the Library produce the PINs and CAD model they need for their CAD system.

PINlookup Utility
(standalone, or feeds into fastener specification)



Fastener Specification
within PARTdataManager

Material and
Finish selection



Export the 3D
solid model to
any CAD

Export the PIN
and fastener
characteristics

Overview

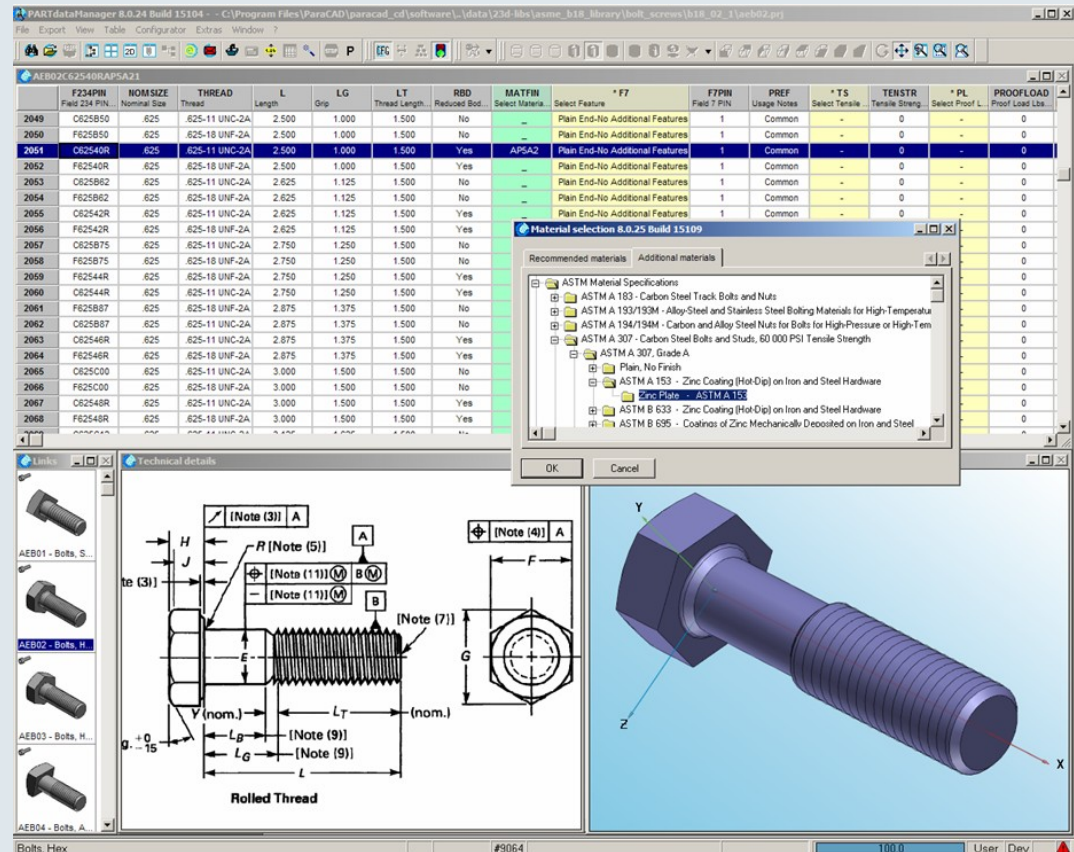
The Digital Fastener Library is an interactive system that provides:

Over 630 unique fastener types

Up to 500 different configurations per type
ASTM, ISO, SAE, IFI, UNS material and heat treat specs

The result: Literally *Millions* of unique fasteners can be defined and their PIN codes generated automatically

The Library can provide users with a native CAD model with precise PIN in virtually any major CAD system



The Digital Fastener Library is an interactive engineering tool

PIN Lookup Utility

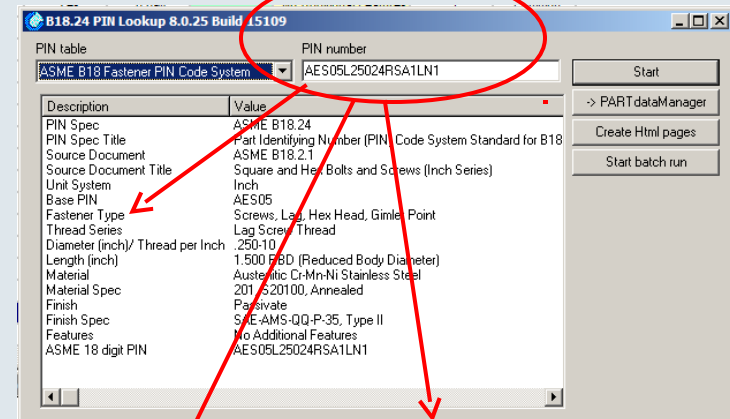
1. User enters a PIN

Capability

Pin lookup utility that takes an old 24 digit PIN, or new 18 digit PIN, and automatically generates that fastener

Benefit

Generates and lists all the characteristics specified by the PIN
Generates a 3D model so you can "see" the fastener. Rotate, pan, zoom, measure it or section it



2. The library delivers the details and the model

AES05L25024RSA1LN1													
	F234PIN Field 234 PIN...	NOMSIZE Nominal Size	THREAD Thread	L Length	LT Thread Length...	LG Grip	RBD Reduced Bod...	SMIN Shoulder Length...	MATFIN Select Material...	* F7 Select Feature	F7PIN Field 7 PIN	PREF Usage Notes	MATERIAL
198	L25022R	.250	.250-10	1.375	1.188	0.188	Yes	0.094	—	No Additional Features	1	Common	-
199	L250A50	.250	.250-10	1.500	1.250	0.250	No	0.094	—	No Additional Features	1	Common	-
200	L25024R	.250	.250-10	1.500	1.250	0.250	Yes	0.094	SA1LN	No Additional Features	1	Common	Austenitic Cr-Mn-Ni Stainless Steel 201, S20100, Anne
201	L250A62	.250	.250-10	1.625	1.313	0.313	No	0.094	—	No Additional Features	1	Common	-



PIN Lookup Utility

Capability

Send Fastener characteristics to others

Publish to web pages or other sources

Benefit

Understand the specifications of a fastener in a easy-to-read format

Copy/Paste PIN numbers to avoid typing errors

PIN	
PIN Spec	ASME B18.24
PIN Spec Title	Part Identifying Number (PIN) Code System Standard for B18 Fastener Products
Source Document	ASME B18.6.3
Source Document Title	Machine Screws and Machine Screw Nuts (Inch Series)
Unit System	Inch
Base PIN	AESD8
Fastener Type	Screws, Machine, Flat Head, Undercut, Slotted
Thread Size (in.)	.250-28 UNF-2A [F250]
Length (in.)	.438 [438]
Material	Carbon Steel
Material Spec	SAE J 429 - Grade 2 [WA1]
Finish	Cadmium Plate
Finish Spec	ASTM B 766, Type I, Class 5 [B4]
Features	Plain End-No Additional Features [1]
ASME 18 digit PIN	AESD8F250438WA1B41

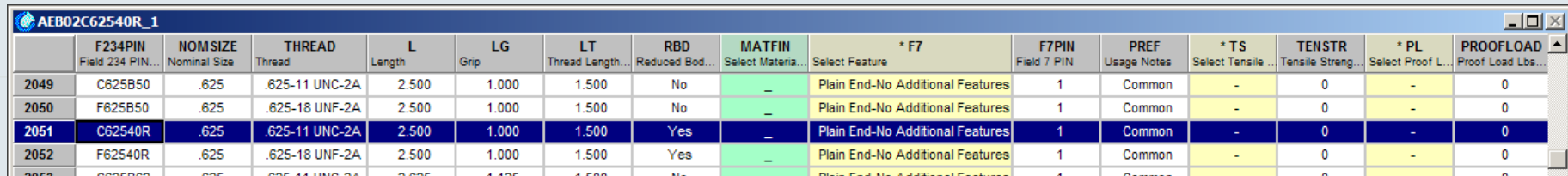
Sample Web page output

PART
SOLUTIONS

Capability

- Nominal size, thread type, lengths, tensile strengths, finish specs, material specs, all head characteristics, special end types, radii, tolerances, etc
- ASTM material specifications

Easy, multiple-choice selection of characteristics needed for the fastening task at hand



Portion of Fastener Specifications Table

The 18 Digit PIN is Generated

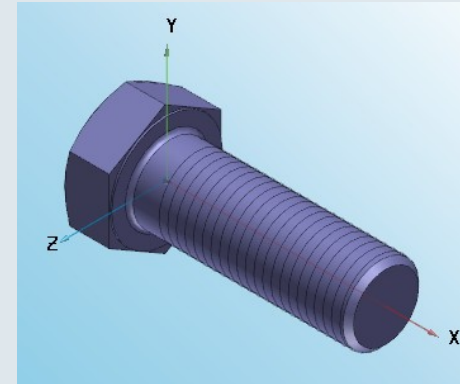
Capability

Automatic generation of the new 18 digit PIN number for the fastener defined.

Benefit

Calculated automatically; reduces errors when trying to assemble the number manually

PIN number is imported into each CAD system also, to ensure correct BOM and ordering.



**PIN Code Number :
AES01CA12C25AP5A21**

ASME B18.24 Fields

- 1 - Fastener Type / Base PIN
- 2 - Thread Configuration
- 3 - Fastener Size
- 4 - Length/Other Dimensions
- 5 - Material and Treatment
- 6 - Plating, Coating, and Passivation
- 7 - Additional Features

ASME B18.24 Fields										
1 - Fastener Type / Base PIN										
2 - Thread Configuration										
3 - Fastener Size										
4 - Length/Other Dimensions										
5 - Material and Treatment										
6 - Plating, Coating, and Passivation										
7 - Additional Features										
18 digit PIN			B18 Fastener Family & Type		Thread Configuration & Size			Material/ Finish		Additional Features
AEB02C250A50AP4A11			AEB02		C 250 A50			AP4 A1		1
B18 Fastener PIN Example			Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	Field 7	

Excerpt from B18.24

Automatic 3D Model Generation

Capability

Automatic generation of a dynamic 3D model of the defined fastener for visual verification. The Library can then provide a *native* CAD model in virtually any CAD system. Over 85 formats are possible.

Benefit

Virtually all major CAD systems get a native model, so you get the correct, complete part in your CAD system

The 18 digit PIN travels with the part into your CAD, so BOM and ordering are ensured



Native
Inventor
AutoCAD
Pro/Engineer
Unigraphics
UG-NX
I-deas
SolidEdge
SolidWorks
Catia V4
Catia V5
...more

PIN Converter Utility

Capability

A converter that will take old 21 digit PINs and automatically create the new 18 digit format

The library delivers the specifications and the 3D model

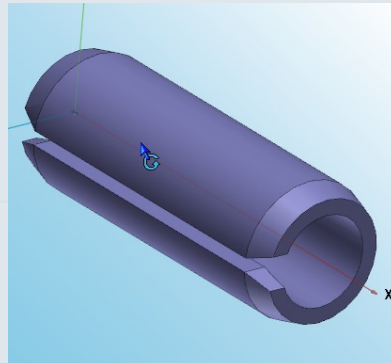
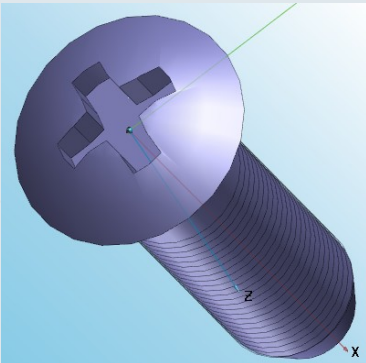
Benefit

Eliminates the manual 12 step process using conversion tables

Ensures accuracy

Makes transition to the new system easy

Generates a dynamic 3D model for visualization, and ready for import to any CAD



NONMANDATORY APPENDIX A

B18.24.1, B18.24.2, B18.24.3
PIN SUCCESSION INSTRUCTIONS

These instructions are meant for use with the worksheet in Fig. A-1. Following that is a 21-digit PIN succession example.

(1) Enter cancelled 21 digit PIN.

(2) Demarcate digit 1 (field 1) PIN.

(3) Based on resolved logic for digit 1, enter the applicable "next table" value in cell A2 and the "table pg#"
value in cell C2.

(4) Demarcate the next 6 or 7 digits (field 2 value) as applicable from "next length" value in cell A2.

(5) Enter field 2 PIN21 value into cell B2.

(6) Look up cell B2 PIN21 value in Table B-2 or B-3, as applicable. Enter resolved PIN18 value into cell D2.

(7) Enter table references by listing them vertically into worksheet beginning from cell A3. Use the simpler "Bxxx-x" format (table-field length) e.g., B136-1 rather than the "[B-xxx]x" format in Tables B-2 and B-3. For example, [B-136] 1.

(8) Demarcate remaining fields according to "next length" values starting from cell A3 downward.

(9) Enter remaining demarcated field values by listing them vertically from cell B3 downward.

(10) Enter the page numbers vertically beginning from cell C3 downward.

(11) Look up PIN18 values for tables listed in column A starting from A3 downward. Enter PIN18 values into column D.

(12) Transpose vertical PIN18 values from column D horizontally to "AE" entry field at bottom of worksheet. This resolves the cancelled B18.24.1-3 PIN to a superseding 18 digit B18.24 PIN.

PIN Conversion 12-step Instructions



if digit 1 above = **B, M, S, or T**

then cell A2 below has a value of **B2-7**

if digit 1 above = **E, N, P, R, V, or W**

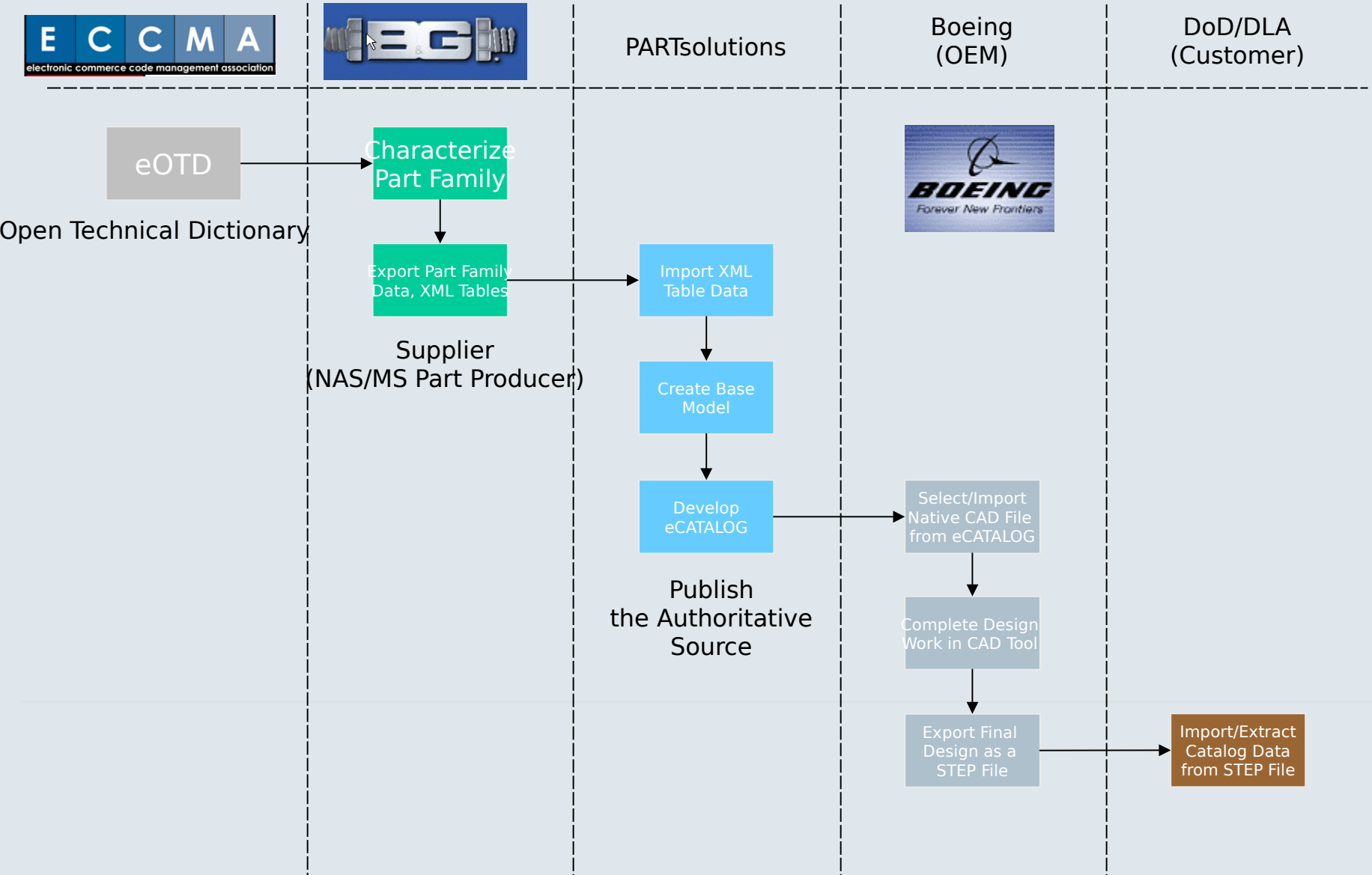
then cell A2 below has a value of **B3-6**

	A	B	C	D
	next—next table—length	PIN21	table pg. no.	PIN18
1	B 2-7	210NA01		AE B03
2	B 4-1	C		
3	B 6-2	AD		
4	B 11-2	16		
5	B 134-5	468GA		
6	B 136-2	AB		
7	B 137-1	1		

PIN Conversion Step/Table #9

PARTsolutions eOTD Workflow...

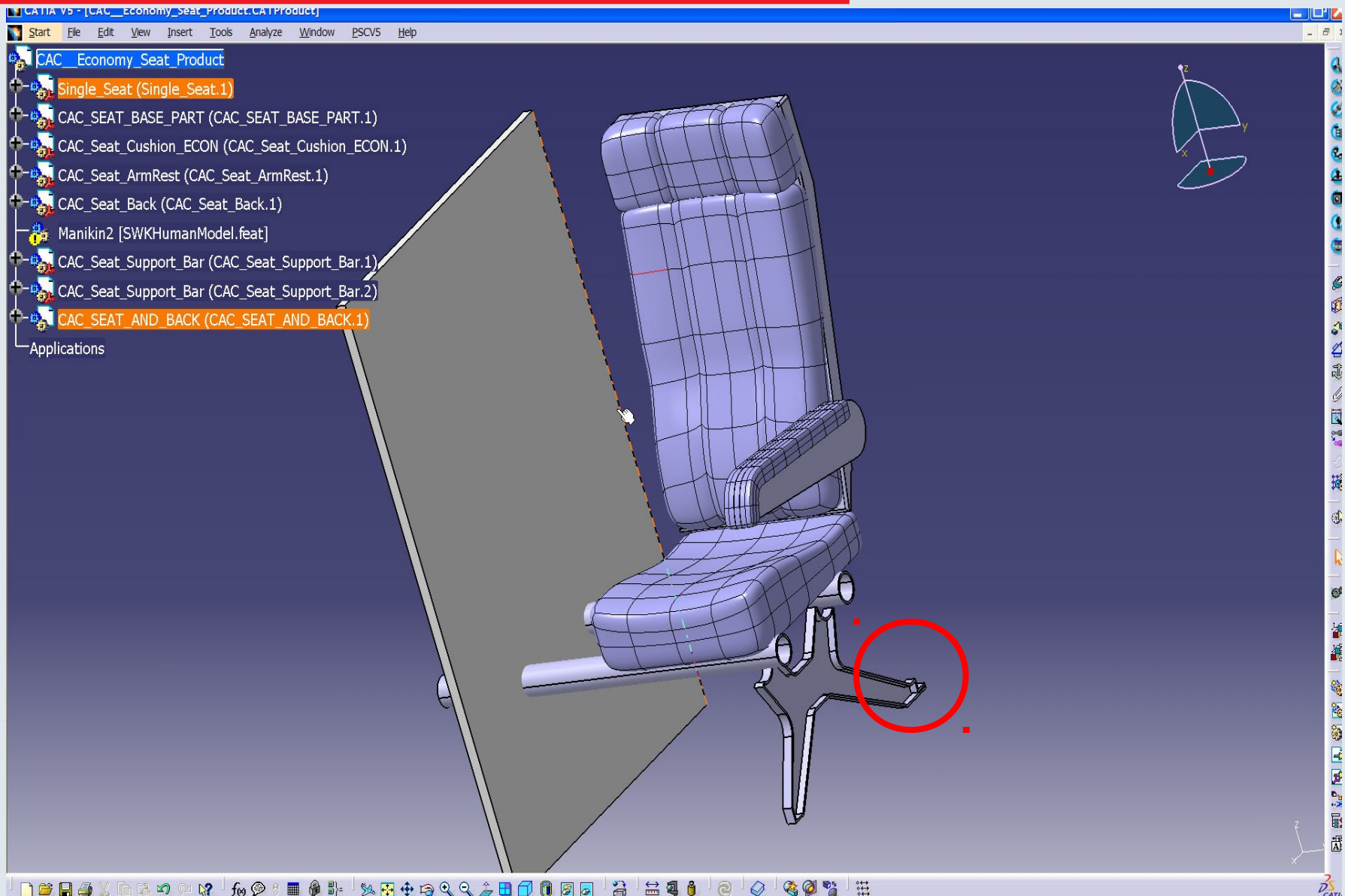
Supporting the eOTD cataloging standard



PARTsolutions Workflow...

Supporting the eOTD cataloging standards

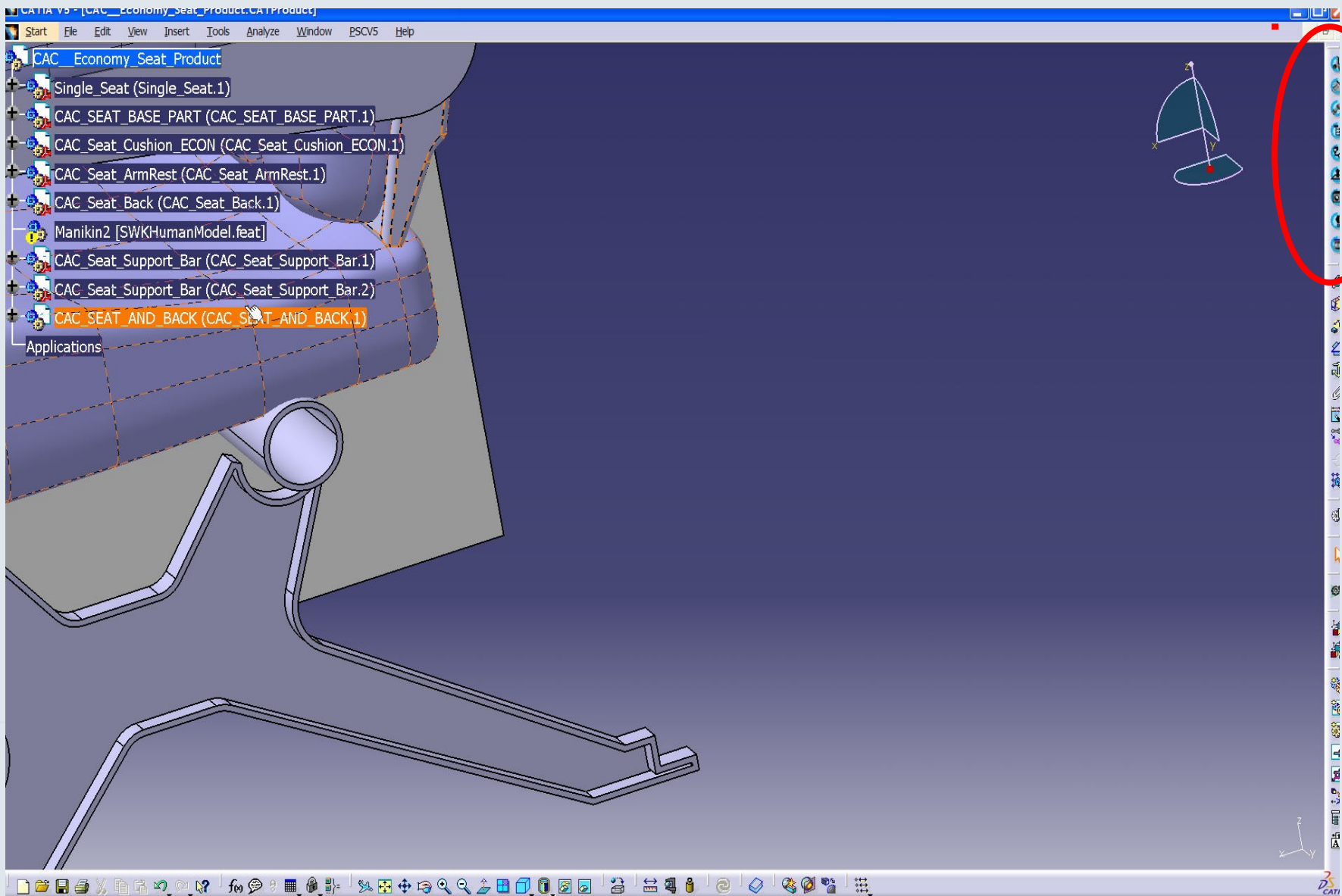
PART
SOLUTIONS



PARTsolutions Workflow...

Supporting the eOTD cataloging standards

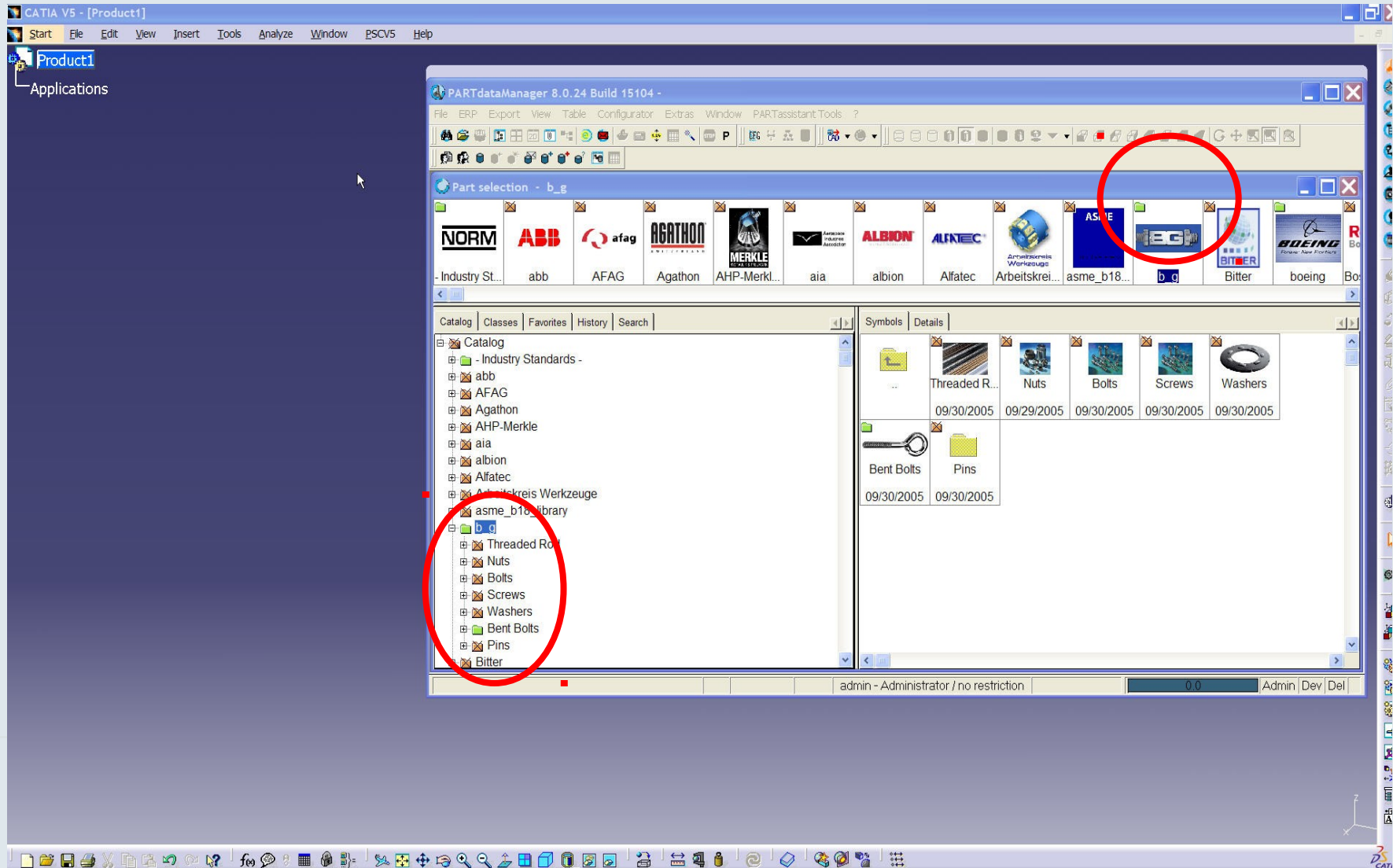
PART
SOLUTIONS



PARTsolutions Workflow...

Supporting the eOTD cataloging standards

PART
SOLUTIONS



PARTsolutions Workflow...

Supporting the eOTD cataloging standards

PART
SOLUTIONS

PARTdataManager 8.0.24 Build 15104 - C:\Program Files\cadenas\partsolutions\data\23d-libs\b_g\bolts\heavy_hex\1a193_b8.prj

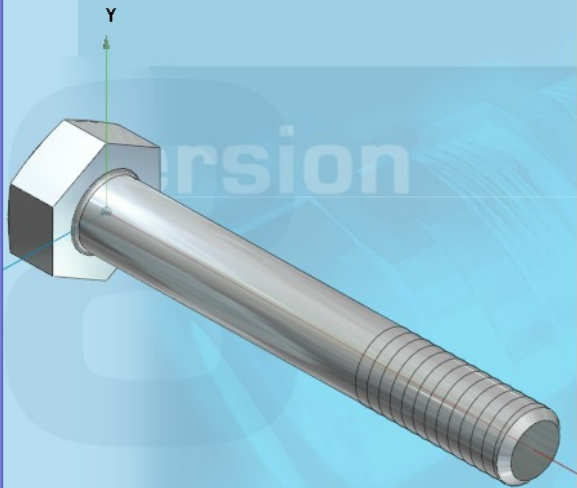
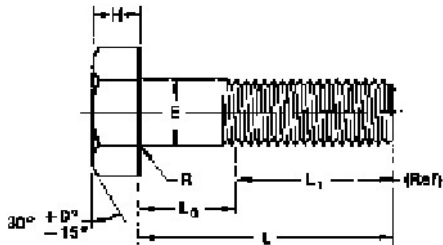
File ERP Export View Table Configurator Extras Window PARTAssistant Tools ?

HEX BOLT 1018 1/2-13 X 3.5

	ERP_PDM_NUMBER ERP-Number	BG_PART_NR B&G PART N°	ESN EOTD ESN #	ESCN EOTD ESCN #	ESPI EOTD ESPI #	ESPN EOTD ESPN #	LOCATION1 SEATTLE	LOCATION2 HUNTINGTON ...	LOCATION3 ST. LOUIS	MAT_NAME Material
1										
2	HB-13579	12135	EX-3893493	BOLT:MACHINE	024165	THREAD QUANTITY PER INCH				
3										
4										
5										
6										
7										
8										

Technical details

HEX BOLT 1018 1/2-13 X 3.5



Directory

- BG
- AISI 1018 ...
- B5F5B3 - ...

Heavy Hex Bolts

10/01/2005 #8 admin - Administrator / no restriction

100.0 Admin Dev Del

PARTsolutions Workflow...

Supporting the eOTD cataloging standards

PART
SOLUTIONS

PARTdataManager 8.0.24 Build 15104 - C:\Program Files\cadenas\partsolutions\data\23d-libs\b_g\bolts\heavy_hex\193_b8.prj

File ERP Export View Table Configurator Extras Window PARTAssistant Tools ?

Export
Don't export
File
as native file
Meta file batch

2D CAD formats
2D system neutral
3D CAD formats
3D system neutral
Image formats
3D non CAD formats
PS2-V1 2D
PS2-V2 2D
PS3-V2 3D

DXF 3D
IGES 3D
SAT binary 3D
SAT ascii 3D
STEP 3D

ERP-Number	ESPI EOTD ESPI #	ESPN EOTD ESPN #	LOCATION1 SEATTLE	LOCATION2 HUNTINGTON ...	LOCATION3 ST. LOUIS	MAT_NAME Material
1						
2						
3						
4						
5						
6						
7						
8						

HEX BOLT 1018 1/2-13 X 3.5

Technical drawing showing dimensions and a 3D model of the hex bolt.

Directory
AISI 1018 ...
B5F5B3 - ...

Create native file

PARTsolutions Workflow...

Supporting the eOTD cataloging standards

PART
SOLUTIONS

PARTdataManager 8.0.24 Build 15104 - - C:\Program Files\cadenas\partsolutions\data\23d-libs\b_g\bolts\heavy_hex\193_b8.prj

File ERP Export View Table Configurator Extras Window PARTAssistant Tools ?

Export
Don't export

File
as native file
Meta file batch

ERP-Number

1 HB-13579

2

3

4

5

6

7

8

2D CAD formats
2D system neutral
3D CAD formats
3D system neutral
Image formats
3D non CAD formats

EXP-ORT
Allplan 3D
CATIA V4 IUA Macro 3D
CATIA V5 CATscript Macro 3D
DWG 3D
Inventor 3D
CADCEUS Macro 3D
Fides Macro 3D
Ideas Macro 3D
Ideas V9 Macro 3D
Inventor Macro 3D
SolidDesigner Macro 3D
Cadd5 Macro 3d Translator
Mechanical Desktop Macro 3D
PRO-Desktop Macro 3D
RobCad 3D
SolidWorks 3D (>=2004)
SolidWorks Macro 3D

PS2-V1 2D
PS2-V2 2D
PS3-V2 3D

Techni

Directory

AISI 1018 ...

B5F5B3 - ...

ESP SPI # ESPN EOTD ESPN # LOCATION1 SEATTLE LOCATION2 HUNTINGTON ... LOCATION3 ST. LOUIS MAT_NAME Material

41 35 THREAD QUANTITY PER INCH

HEX BOLT 1018 1/2-13 X 3.5

Y

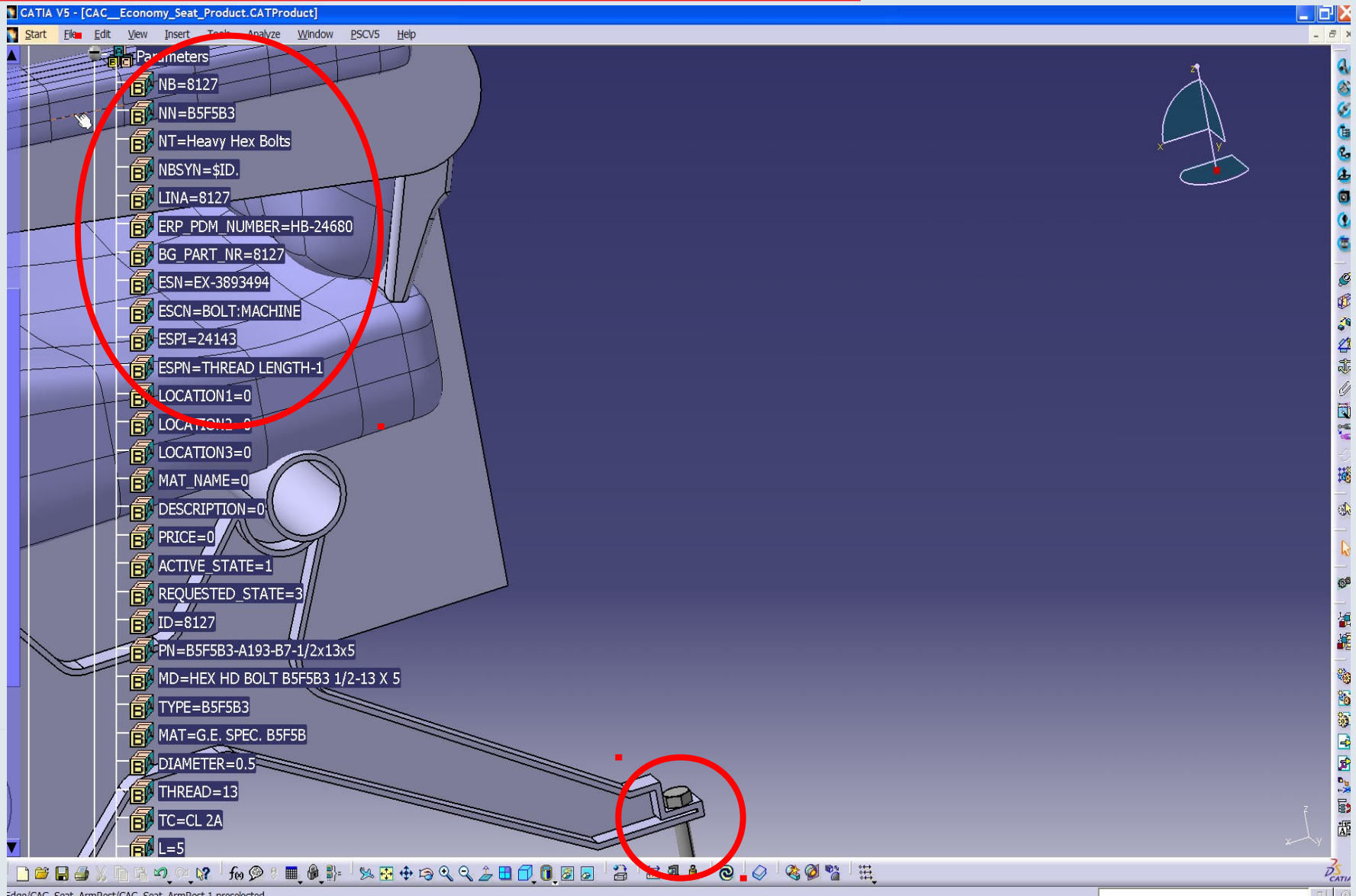
30° +0° -15°

L₁ L₂ L₃ L₄ L₅ L₆ L₇ L₈ L₉ L₁₀ L₁₁ L₁₂ L₁₃ L₁₄ L₁₅ L₁₆ L₁₇ L₁₈ L₁₉ L₂₀ L₂₁ L₂₂ L₂₃ L₂₄ L₂₅ L₂₆ L₂₇ L₂₈ L₂₉ L₃₀ L₃₁ L₃₂ L₃₃ L₃₄ L₃₅ L₃₆ L₃₇ L₃₈ L₃₉ L₄₀ L₄₁ L₄₂ L₄₃ L₄₄ L₄₅ L₄₆ L₄₇ L₄₈ L₄₉ L₅₀ L₅₁ L₅₂ L₅₃ L₅₄ L₅₅ L₅₆ L₅₇ L₅₈ L₅₉ L₆₀ L₆₁ L₆₂ L₆₃ L₆₄ L₆₅ L₆₆ L₆₇ L₆₈ L₆₉ L₇₀ L₇₁ L₇₂ L₇₃ L₇₄ L₇₅ L₇₆ L₇₇ L₇₈ L₇₉ L₈₀ L₈₁ L₈₂ L₈₃ L₈₄ L₈₅ L₈₆ L₈₇ L₈₈ L₈₉ L₉₀ L₉₁ L₉₂ L₉₃ L₉₄ L₉₅ L₉₆ L₉₇ L₉₈ L₉₉ L₁₀₀ L₁₀₁ L₁₀₂ L₁₀₃ L₁₀₄ L₁₀₅ L₁₀₆ L₁₀₇ L₁₀₈ L₁₀₉ L₁₁₀ L₁₁₁ L₁₁₂ L₁₁₃ L₁₁₄ L₁₁₅ L₁₁₆ L₁₁₇ L₁₁₈ L₁₁₉ L₁₂₀ L₁₂₁ L₁₂₂ L₁₂₃ L₁₂₄ L₁₂₅ L₁₂₆ L₁₂₇ L₁₂₈ L₁₂₉ L₁₃₀ L₁₃₁ L₁₃₂ L₁₃₃ L₁₃₄ L₁₃₅ L₁₃₆ L₁₃₇ L₁₃₈ L₁₃₉ L₁₄₀ L₁₄₁ L₁₄₂ L₁₄₃ L₁₄₄ L₁₄₅ L₁₄₆ L₁₄₇ L₁₄₈ L₁₄₉ L₁₅₀ L₁₅₁ L₁₅₂ L₁₅₃ L₁₅₄ L₁₅₅ L₁₅₆ L₁₅₇ L₁₅₈ L₁₅₉ L₁₆₀ L₁₆₁ L₁₆₂ L₁₆₃ L₁₆₄ L₁₆₅ L₁₆₆ L₁₆₇ L₁₆₈ L₁₆₉ L₁₇₀ L₁₇₁ L₁₇₂ L₁₇₃ L₁₇₄ L₁₇₅ L₁₇₆ L₁₇₇ L₁₇₈ L₁₇₉ L₁₈₀ L₁₈₁ L₁₈₂ L₁₈₃ L₁₈₄ L₁₈₅ L₁₈₆ L₁₈₇ L₁₈₈ L₁₈₉ L₁₉₀ L₁₉₁ L₁₉₂ L₁₉₃ L₁₉₄ L₁₉₅ L₁₉₆ L₁₉₇ L₁₉₈ L₁₉₉ L₂₀₀ L₂₀₁ L₂₀₂ L₂₀₃ L₂₀₄ L₂₀₅ L₂₀₆ L₂₀₇ L₂₀₈ L₂₀₉ L₂₁₀ L₂₁₁ L₂₁₂ L₂₁₃ L₂₁₄ L₂₁₅ L₂₁₆ L₂₁₇ L₂₁₈ L₂₁₉ L₂₂₀ L₂₂₁ L₂₂₂ L₂₂₃ L₂₂₄ L₂₂₅ L₂₂₆ L₂₂₇ L₂₂₈ L₂₂₉ L₂₃₀ L₂₃₁ L₂₃₂ L₂₃₃ L₂₃₄ L₂₃₅ L₂₃₆ L₂₃₇ L₂₃₈ L₂₃₉ L₂₄₀ L₂₄₁ L₂₄₂ L₂₄₃ L₂₄₄ L₂₄₅ L₂₄₆ L₂₄₇ L₂₄₈ L₂₄₉ L₂₅₀ L₂₅₁ L₂₅₂ L₂₅₃ L₂₅₄ L₂₅₅ L₂₅₆ L₂₅₇ L₂₅₈ L₂₅₉ L₂₆₀ L₂₆₁ L₂₆₂ L₂₆₃ L₂₆₄ L₂₆₅ L₂₆₆ L₂₆₇ L₂₆₈ L₂₆₉ L₂₇₀ L₂₇₁ L₂₇₂ L₂₇₃ L₂₇₄ L₂₇₅ L₂₇₆ L₂₇₇ L₂₇₈ L₂₇₉ L₂₈₀ L₂₈₁ L₂₈₂ L₂₈₃ L₂₈₄ L₂₈₅ L₂₈₆ L₂₈₇ L₂₈₈ L₂₈₉ L₂₉₀ L₂₉₁ L₂₉₂ L₂₉₃ L₂₉₄ L₂₉₅ L₂₉₆ L₂₉₇ L₂₉₈ L₂₉₉ L₃₀₀ L₃₀₁ L₃₀₂ L₃₀₃ L₃₀₄ L₃₀₅ L₃₀₆ L₃₀₇ L₃₀₈ L₃₀₉ L₃₁₀ L₃₁₁ L₃₁₂ L₃₁₃ L₃₁₄ L₃₁₅ L₃₁₆ L₃₁₇ L₃₁₈ L₃₁₉ L₃₂₀ L₃₂₁ L₃₂₂ L₃₂₃ L₃₂₄ L₃₂₅ L₃₂₆ L₃₂₇ L₃₂₈ L₃₂₉ L₃₃₀ L₃₃₁ L₃₃₂ L₃₃₃ L₃₃₄ L₃₃₅ L₃₃₆ L₃₃₇ L₃₃₈ L₃₃₉ L₃₄₀ L₃₄₁ L₃₄₂ L₃₄₃ L₃₄₄ L₃₄₅ L₃₄₆ L₃₄₇ L₃₄₈ L₃₄₉ L₃₅₀ L₃₅₁ L₃₅₂ L₃₅₃ L₃₅₄ L₃₅₅ L₃₅₆ L₃₅₇ L₃₅₈ L₃₅₉ L₃₆₀ L₃₆₁ L₃₆₂ L₃₆₃ L₃₆₄ L₃₆₅ L₃₆₆ L₃₆₇ L₃₆₈ L₃₆₉ L₃₇₀ L₃₇₁ L₃₇₂ L₃₇₃ L₃₇₄ L₃₇₅ L₃₇₆ L₃₇₇ L₃₇₈ L₃₇₉ L₃₈₀ L₃₈₁ L₃₈₂ L₃₈₃ L₃₈₄ L₃₈₅ L₃₈₆ L₃₈₇ L₃₈₈ L₃₈₉ L₃₉₀ L₃₉₁ L₃₉₂ L₃₉₃ L₃₉₄ L₃₉₅ L₃₉₆ L₃₉₇ L₃₉₈ L₃₉₉ L₄₀₀ L₄₀₁ L₄₀₂ L₄₀₃ L₄₀₄ L₄₀₅ L₄₀₆ L₄₀₇ L₄₀₈ L₄₀₉ L₄₁₀ L₄₁₁ L₄₁₂ L₄₁₃ L₄₁₄ L₄₁₅ L₄₁₆ L₄₁₇ L₄₁₈ L₄₁₉ L₄₂₀ L₄₂₁ 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PARTsolutions Workflow...

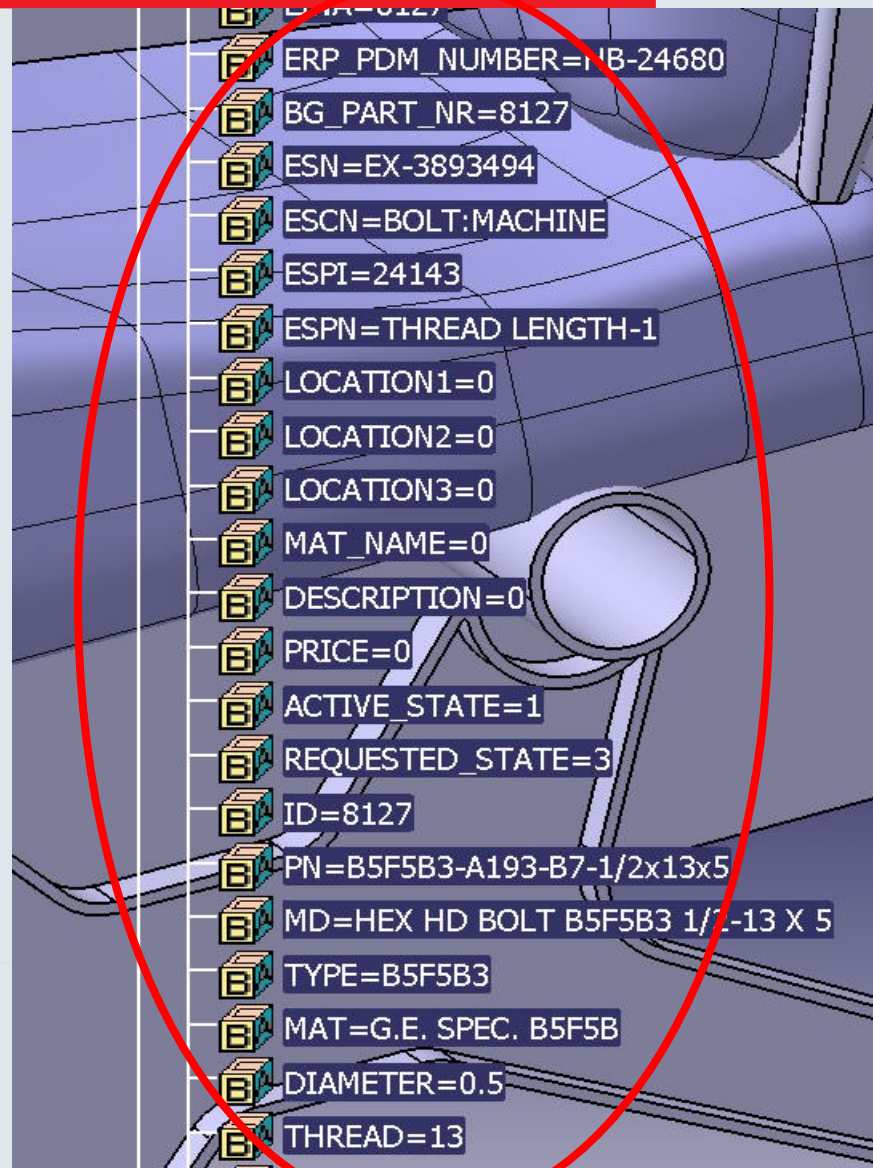
Supporting the eOTD cataloging standards

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PARTsolutions Workflow...

Supporting the eOTD cataloging standards



- The requirement to AUTHOR and MAINTAIN standards as an authoritative source; The need to “Standardize Standards”
- Agency requirements for Audit trail (FDA, NTSB, FAA.....)
- Supports ISO 9000 Best Practices and other Standard Part Management Process Specifications
- Native Integration to any CAD/PDM/ERP system; if technologies change in the Enterprise the IT investment is secure.
- Completely Avoid Part Proliferation or “Jungle of Parts”.
- Standardize and globally share your libraries with your Supply Chains/Work Teams.
- Inline multi-language Support which enables global work-team communication.

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